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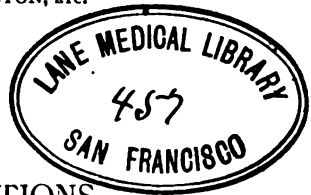
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LESSONS  
IN  
GYNECOLOGY,

BY  
WILLIAM GOODELL, A. M., M. D.,

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WITH EIGHTY ILLUSTRATIONS.

PHILADELPHIA, PA.  
D. G. BRINTON, 115 SOUTH SEVENTH STREET,  
1879.

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DEDICATION.

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TO

S. WEIR MITCHELL, M. D.,

AS A TOKEN OF FRIENDSHIP AND OF ESTEEM.

WILLIAM GOODELL.



## PREFACE.

---

THIS book is not a treatise upon the diseases of women, but mainly the outcome of clinical and of didactic lectures delivered to the advanced students of the Medical Department of the University of Pennsylvania.

Some of these Lessons have been furbished up from notes taken by my friends Dr. Frank Woodbury and Dr. S. M. Miller. Others, of a didactic character, have been made up from my contributions to medical journals, and I have, therefore, not hesitated to sacrifice unity of time to unity of the subject.

A busy life and a slow pen have long kept me from writing a book, but I have yielded to the wishes of my students and of the many physicians who have honored me by attending my lectures.

500 NORTH TWENTIETH STREET, PHILADELPHIA.

May 15, 1879.

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# LESSONS IN GYNECOLOGY.

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## LESSON I.

---

### *Gynecological Instruments.*

THE ordinary working tools which you should carry in your satchel, and which I therefore recommend you to purchase at the outset of your practice, are as follows:

One base-opening bivalve speculum (Goodell's) whose blades are not over three inches and three-quarters long, and are one inch and a quarter wide.

One duck-bill speculum.

Two glass speculums (Fergusson's), the one not longer than five inches and three-quarters, with the smaller aperture measuring one inch and a quarter in diameter; the other five inches long, and at the smaller aperture seven-eighths of an inch wide.

Two applicators of aluminium wire, with one adjustable handle.

Two uterine tenaculums.

One small volsella forceps.

One fenestrated polypus forceps.

One speculum forceps.

One dull curette (Thomas's), and one sharp curette (Sims's).

One uterine sound.

One uterine repositor (Elliot's).

One hard rubber uterine syringe with a long flexible nozzle.

One strong uterine dilator (Ellinger's).

One Buttle's lance-pointed scarificator.

This list by no means exhausts the number of instruments required for special cases of uterine disease. But, in my opinion, no one can intelligently and successfully treat the ordinary diseases of the womb without, at least, the foregoing instruments.

At first blush the blades of the bivalve speculum (Figs. 1 and

FIG. 1.



FIG. 2.



2), may seem too short—those of my favorite one measure a scant three and a half inches. But practically, if their tips be directed to the previously ascertained site of the cervix, it will be found that, when widely separated, they will so stretch the uterine end of the vagina as to bring down the cervix into the field of vision, not only very close to the eye of the physician, but within reach of his index finger. For diagnostic or for operative purposes these are advantages not to be overlooked. In very rare cases, such as of a fat woman, whose vagina is large and flabby, or of one in whom, by a fibroid or an ovarian tumor, or by pregnancy, the womb is lifted up above its accustomed site, the cervix may not be well exposed by this instru-

ment. In these very exceptional cases the duck-bill may be used, or the larger of the Fergusson speculums may be substituted for the bivalve. The smaller glass speculum is put down in the list because it will occasionally be found useful in the examination of unmarried women, or of those in whom the introitus vaginæ is either unnaturally small or spasmodically contracted. Yet even in these cases, after the slow admission of one, and then of two fingers, the parts can usually be sufficiently dilated for the admission of the bivalve speculum. Under ether this can always be done.

I feel quite sure that physicians who have once used this speculum, with the woman lying on her back, will never wish to return to their old-fashioned cylindrical or quadrivalve speculums. One hint, however, to those of you who do not feel disposed to give up your long-used glass speculums for a new and an untried instrument. The Fergusson speculums as sold in the shops are entirely too long and too narrow. For exceptional cases it is well to have on hand the two sizes above given; but the best working speculum of this kind is, in my experience, one not over five inches in length, and with the smaller aperture not under one inch and one-eighth in diameter.

The uses of the other instruments will be indicated in the proper place; but a word here with regard to two articles on the list: The probes, or applicators, of aluminium wire, are chosen because this metal is flexible and resists the action of most of the corrosive agents employed in uterine therapeutics. A sliding and removable handle is recommended for these applicators, both because a fixed one makes the instrument too long for easy carriage, and because I have found that the wire is very liable to break off at the line of junction with the handle. The uterine sound should have merely the usual knob at the distance of two inches and a half from its tip. If otherwise graduated it will very soon snap off at one of the deep notches made to mark off the inches. It should, further, consist of one piece; else by the wearing away of the thread of the uniting screw the relation between the handle and the tip is lost. One

more word with regard to the sound. It should never be introduced until the physician has first satisfied himself that the womb is not gravid; and this golden rule holds good for all uterine applications. I lay stress on this point, for I once carelessly brought on an abortion in an estimable married lady, who was quite as much surprised at the result, but not quite so much mortified as I was. Again, I have on more than one occasion, been consulted for uterine disease by designing women, who, being pregnant, sought advice with the hope of having a cheap riddance induced by the treatment. Once, after arranging to meet a physician who lived some twenty miles off, I received a countermanding telegram followed by a letter, explaining that the supposed uterine disease of his patient, a reputable married woman, was pregnancy, and that her sole object was the hope of having an abortion provoked by the examination. His suspicions had been aroused by mine, and by working on the fears of his patient he extorted a confession. These facts should lead one to be on one's guard, and a good off-hand rule to remember is this: When the cervix is as soft as one's lips, the woman is probably pregnant; when it is as hard as the tip of one's nose, the womb is most likely empty.

As a setting to the subject of the selection of instruments, I wish to give you one broad and practical rule regarding their general use. Let all those of you who are right-handed, learn to use the left hand for making uterine examinations and for other inside work. This leaves a clean right hand for manipulating the various instruments, and for any needful outside work. Again, this will give you an obstetric hand and a gynecological hand. With your left hand you will make all rectal and vaginal examinations—that is to say, with it you will do all your dirty work. Your right hand you will reserve as much as possible for obstetric work. By this precaution you will be less likely to carry poison from womb to womb, and to infect your puerperal patients.

## GYNECOLOGICAL TABLE.

Whenever you examine your patients at their own homes, you will find an ordinary kitchen or a breakfast table the very best thing on which to place them. But most ladies prefer that their servants should be kept in ignorance of the treatment which they are undergoing, and the physician is therefore very generally compelled to resort to a bedstead. To use this article of furniture to the best advantage, it ought to be wheeled towards a window, and, in order to prevent any sinking in of the bed, a lapboard should be placed under the spread. But, as all such examinations are tedious and liable to be unsatisfactory, I should advise you to cultivate an office practice, and teach your walking patients to come to you, instead of sending for you. At your office you will have just the proper light and just the proper means for such a purpose. And this brings me to the consideration of the best means for making such examinations.

Many physicians use an ordinary lounge—one without a foot-board. Others prefer some one of the many examining chairs,

FIG. 3.



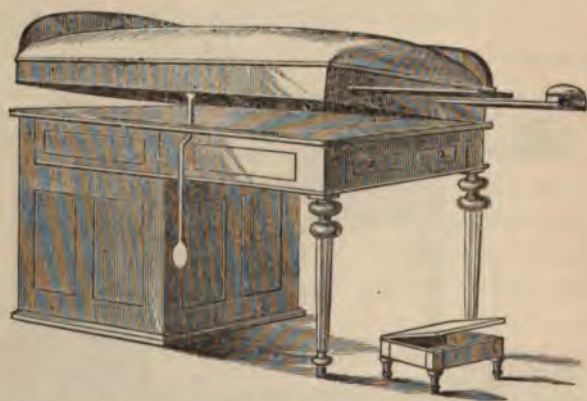
GYNECOLOGICAL TABLE.

I myself think that nothing equals a good upholstered table—such as the one I now show you. (Fig. 3.)

It is a slight modification of one devised by my friend Dr. M.

D. Mann, of New York, and was made for me by Lewis Thompson & Co., of Philadelphia. It is forty-six inches long, twenty-seven wide, thirty-two high at the foot, and twenty-nine at the head. It slopes three inches from foot to head, and the hips of the patient are therefore on a higher plane than her shoulders. It has a head-piece and one side-piece, which are removable. It is furnished with one drawer in front for instruments and for the applying fluids, and with three drawers on one side for pessaries and for other purposes. It has two foot-rests, one for each foot when the woman lies on her back. The left one is tipped with a padded block, on which the left ankle and foot rest, when the semi-prone position is assumed. In this position the woman lies on her left side, with her left arm behind her back, the chest prone, the knees drawn up, and the nates brought down to the edge of the table. In order to make the abdomen still more prone, and thus to facilitate the entrance of air into the vagina, the upholstered top of the table is so hinged

FIG. 4.



SHOWS THE LEVER AND THE LATERAL DIP OF THE TABLE.

to the frame as to permit one side of it to be raised up by a lever, while the woman is lying upon it, thus giving her body a lateral slope, or dip, of four inches—(Fig. 4.) The side-piece

(better shown in Fig. 3) is then needed to keep the woman from slipping off of the table. To utilize room, the stool on which the woman steps in getting on and off the table, is merely a box on legs, with a lid to it. It holds the cotton-wool or any other like needful article within easy reach of the operator.

It has been urged that an examining table like this one, presents so formidable an appearance as to deter timid women from coming to the office of the physician. This objection does not hold good, for whenever a woman has made up her mind to submit to an examination, she is willing to have it conducted in the manner which her physician deems the most suitable. After having examined the same patients on reclining chairs, on lounges, on their own beds, and on my table, I have had them express a preference for the last.

It is an excellent plan to have a female attendant in one's office. She helps the lady in getting on and off the table, and adjusts her clothing. She also holds the duck-bill speculum *in situ*, cleans soiled instruments, and performs other needful services which save the physician's time. Further, her presence tends to protect him from evil-speaking or from designing women. She should not be present during the preliminary interview between the physician and his patient, but should be called in to the office for the examination only.

While on the subject of office advice, let me urge you to keep full notes of your office cases. Appearing and disappearing at shorter or longer intervals, they constitute a floating practice, which cannot be intelligently followed unless some record is kept of its history and treatment. A few notes of this kind I have found of the greatest value, not only for prompting my memory but for saving my time.

## LESSON II.

---

### *Caruncle and other Affections of the Female Urethra.*

#### CARUNCLE.

THE female urethra, from its shortness, elasticity, and large bore, is very rarely narrowed by strictures. But it is liable to a class of disorders from which the male urethral canal is almost wholly exempt. The most common and the most painful of these is the one I purpose to show you in the person of this woman.

She is forty-three years old, but constant suffering has made her look much older. In fact, from her great emaciation, care-worn expression, and general cachectic appearance, one might readily suppose her to be the victim of some grave constitutional disease. Her history, in brief, is as follows: Four years ago, while in perfect health, her urine began to scald her. The pain, at first bearable, daily grew worse, until it now is so acute that she holds her water as long as possible, and when passing it clutches the bed-post in her agony. The act of voiding the last few drops gives her the most suffering. Before long, cohabitation became painful, but, with that submissive affection which characterizes many a wife, she yielded to her husband's wishes until it could no longer be borne. For several months she has ceased to have intercourse with him. This is, of course, a source of domestic unhappiness. Unless she stoops and widely straddles her legs, walking is attended with much pain. She complains of a constant heat and throbbing in the external organs of generation, has more or less leucorrhœa, and finds her linen often stained with blood and her urine streaked with it.

By brooding over her sufferings and over her incomplete conjugal relations, she has come into a very morbid state of mind. Now, most of these symptoms are characteristic of some utero-vaginal affection, and the physicians whom she has consulted have been so misled as to direct their attention to the womb and vagina. Applications have been made to the cervix uteri, which, by the way, is somewhat eroded; vaginal suppositories have been used, and even a pessary has been introduced. What has served still further to lead them astray is a marked sympathetic or reflex pain in the left ovarian region, which is almost always pathognomonic of uterine disease. I ought to do them the further justice to add that they saw her before her sufferings had become as acute as they are at present. Nor can I afford to be uncharitable, for I myself have made the same blunder.

As I separate her thighs and expose the meatus urinarius, those of you on the lower benches can see, peeping out of it, a small crimson and wart-like body. It is called urethral caruncle, vascular tumor, and vascular excrescence of the urethra; but we won't trouble ourselves much about names. What we wish to know is how to cure the disease. I seize the growth with this toothed forceps, and by very gentle traction bring it wholly to view. It now looks like a small Antwerp raspberry, and shows a broad base of attachment just within the lower verge of the meatus. Insignificant in size as this little growth is, it has embittered this woman's life for the past four years. Notice its vascularity: it bleeds on the slightest touch. Remark also its extreme sensitiveness: although profoundly anæsthetized, the woman winces and draws up her limbs. So exquisitely alert are the little nervelets distributed over its surface, that were she not under the influence of ether she would writhe under the brush of a feather. Let me here remark that the vulva and outlying reproductive organs of a woman are the last to yield to the influence of an anæsthetic. Sensation is here so acute that it will remain long after other peripheral nerves have become benumbed. Thus, in the attempt to pass the hand into the vagina for the purpose of performing version, or to introduce

a speculum in cases of vaginismus, although the woman may be breathing stertorously and her conjunctivæ may be without feeling, she will often so resist as to need a fresh instalment of ether. I mention this fact not only for your future guidance, but also as a partial explanation of her acute sufferings.

You must not infer that every case of caruncle presents symptoms as exacting as these. In the majority of cases there will be no constitutional implication, and the woman will complain merely of discomfort or of pain during the acts of micturition and of coition. But, on the other hand, worse cases will be met with—cases in which, by loss of rest, constant suffering, and endless brooding, insanity has been induced. Some women have even been goaded by their anguish to commit suicide. Last autumn I saw a young married lady who was broken down in mind and body by her sufferings. She was peevish, morose, and melancholic, and had dysmenorrhœa and every imaginable ache. Coitus had not been indulged in for months, and she had taken to her bed. Neither her medical attendant nor myself could believe that the presence of a urethral caruncle satisfactorily accounted for pale lips, hollow cheeks, sunken eyes, and for her grave mental and physical manifestations. I sounded her heart and lungs, investigated the condition of her abdominal organs, examined the cervix uteri for a cancer, and finally, I am ashamed to confess, straightened out a somewhat anteflexed womb. Yet, after we removed the caruncle, she became another woman. As if by magic, all her pains and aches, even her dysmenorrhœa, left her. She got out of bed, gained rapidly in flesh, is now an active housekeeper, and, what is more rare, a very grateful patient.

These torturing growths are more common to the married than to the single, and are usually found in women who have passed the prime of life. I am inclined to think that they generally owe their existence to the congestion of the urethral plexus of veins—such, for instance, as is induced by the pressure of the gravid or the displaced womb, or by the pressure of an over-distended bladder or rectum. In fact, pretty much the same causes are at work which tend to produce piles. Habits

of uncleanness may also generate them, and so may any irritating leucorrhœal discharge. Gonorrhœa is likewise said to be a cause, but I have seen no instance in which they could be traced to this disease. They consist of hypertrophied papillæ covered with a layer of tessellated epithelium, and are largely supplied with nerves and blood-vessels. They may be single or multiple, sessile or stalked, pink or scarlet, and are usually found on the lower verge of the meatus. I have, however, seen them stud the whole circumference of this opening, and occasionally have found them extending up the canal for a distance of half an inch or more. In size they range from a pin's head to that of a pigeon's egg, but I have never met with one larger than a good-sized raspberry. The suffering caused by them bears no relation whatever to their size. Very small ones may give rise to intolerable anguish, while a large one may produce merely a sense of discomfort. The more vascular and vivid in color, the more sensitive do they seem to be. Some authors describe a pale, non-vascular, but exquisitely sensitive tumor of the urethra, which appears to be neuromatous in character. This I have never met with. I have, however, twice removed from unmarried girls a worm-like tumor, which dangled from the vestibule. It was pale in color, but seemed to give no discomfort.

Since most of the lesions of the reproductive apparatus, such as vaginitis, uterine displacements, etc., give rise to vesical disturbance, and since the symptoms are not always so typical as in the case before us, a urethral caruncle is very likely to be overlooked by a physician. Reflex symptoms, uterine in their expression, will also tend to lead him astray; while a very natural delicacy prevents him from making the needful visual inspection of the parts. Early in my practice a mortifying blunder of this sort taught me to make it a rule always to inspect the urethral opening whenever dysuria is complained of. But woman's modest nature—nor would we have it otherwise—instinctively resents such an examination. If brusquely proposed, it will almost always be denied. How then is it to be effected? Let me here give you a hint worth knowing: Never

suggest to a woman the necessity for making an ocular inspection of her person, but do it without consulting her. Let us suppose that you are called in to a case in which dysuria is a prominent symptom. You will very naturally infer the existence of some uterine lesion, and will, of course, ask for an examination with the speculum, to which most women will submit. While exploring the uterus with the index-finger, you may with the thumb press upon the meatus, and notice whether the contact elicits pain. During the introduction or the withdrawal of the speculum you can always visually inspect the parts without the knowledge of the woman. Now, in my experience, whenever you can confidently say to your patient: "I have discovered the cause of your trouble; here it is," and then by digital pressure upon the caruncle can convince her of the correctness of your statement, she will offer no resistance to any future needful exposure of her person. Under all circumstances, however, you must not forget to go through with the formality of covering her with a sheet; for just as you gild and sugar-coat what is bitter to the taste, so must you gild and sugar-coat what is bitter to the mind.

What is the prognosis of this affection? Very good, when the caruncle dangles from the meatus by a slender stalk. Guarded, when it is sessile or multiple, and especially when it extends up the canal. Like the heads of the fabled hydra—whenever a sessile caruncle is removed, one or more are very likely to spring up from its stump. Yet even then a cure is usually attainable; while at their worst, as I shall presently show you, their growth can be restrained and the woman made comfortable.

Now comes the final question: What are our resources for the cure of this affection? When distinctly pedunculated, one snip of the scissors is all that is needful for a cure. But when sessile, as they usually are, difficulties arise in the way of their removal which demand the administration of ether and the aid of two assistants.

Let me now illustrate this on our patient. She lies in the lithotomy-position, fronting a good light, and with her knees

supported by these gentlemen, who also place their fingers on each side of the meatus and stretch it open. I now hook up the base of the growth with a uterine tenaculum, and snip it off by repeated clips of a curved pair of scissors. I take care to include also a portion of the surrounding healthy mucous membrane. To prevent its otherwise pretty sure return, I quickly dry the raw surface and sear it with this very ingenious and invaluable instrument invented by M. Paquelin, a Frenchman, who calls it a Thermo-cautery.



It consists of the double steel tubes G and I, ending in a hollow platinum tip, into which, through a flexible tube-attachment to the bottle C, the vapor of benzoline is forced by working the rubber spray-bellows E. When once the platinum tip of one of these tubes is heated red-hot in the alcohol lamp A, it never cools so long as the spray-bellows is worked. I plunge it into this glass of cold water, and, although it comes out black and apparently extinguished, I am able at once, as you see, to make it glow again.

Formerly I used to sear the raw surface of the wound with the frayed end of a match dipped into fuming nitric acid. This is a good plan, but it does not always stay the hemorrhage, which is sometimes quite free. For instance, about twelve months ago I removed, for the second time, a cluster of sessile growths, and found at my next visit, twelve hours afterwards, that the lady had lost and was losing too much blood. I staunched the bleeding point with ice and Monsel's salt, and put on a compress with a T-bandage; but at my next visit, six hours later, I found her quite blanched from a recurrence of the hemorrhage. I now ineffectually applied the solid stick of lunar caustic, and then tried to nip the bleeding point with a *serre-fine*, (Fig. 20) but the tenderness of the part was so great that she would not permit any further interference; nor would she again inhale an anæsthetic. For a moment I was at my wits' end to know what to do. The prospect of spending an hour or two at her bedside with my finger pressing on the urethra through the vagina, was not an agreeable one. But I finally succeeded by stuffing a sponge half-way into the vulvar opening. Its elasticity and that of the perineum, on which it rested, made the needful pressure upon the bleeding surface.

For avoiding the troublesome complication of hemorrhage, and also for ensuring the complete destruction of the growth, the actual cautery is undoubtedly the best agent. But, since the expense will put the thermo-cautery or the galvano-caustic battery out of your reach, I should advise you to use a red-hot knitting-needle, or some one of those blunt-pointed instruments which dentists use in plugging teeth. When the caruncle lies high up, the urethra can be very effectively stretched open by two hair-pins bent into a hook and held by an assistant. An admirable speculum of wire has been devised for this purpose by Dr. George F. French, of Portland, Maine.

But it is high time to return to our patient. The after-treatment will consist of the application twice a week of the undiluted commercial carbolic acid (Calvert's No. 4), until the raw surface has skinned over. By the use of this agent I have best succeeded in preventing a crop of small growths from springing

up from and around the site of the parent growth. Sometimes you will have to repeat the cutting operation, but not often, if you follow the plan of treatment I have laid down. Once, in an obstinate case, which had passed through several hands and had stubbornly resisted repeated operations, I gained a cure by first cutting off the growth, and then forcibly dilating the urethral canal with the expanded blades of a dressing-forceps until it admitted my index-finger. I argued that by stretching the muscular coat of the urethra I should release the involved plexus of veins from its spasmodic contraction, and thus relieve their congestion. My friend Dr. Theophilus Parvin has succeeded by excising the growth, and bringing the edges of the wound together with stitches. By this procedure the site of the caruncle is covered with healthy tissue, and the chances of its return are greatly lessened. I must, however, add that, since using the hot iron, I have not had a relapse.

But every woman will not submit to the cutting operation. What then is to be done? Whittle the end of a match to a point, and with it touch each growth twice a week with the crystals of carbolic acid made fluid by heat. This is a very painless operation, and one which you will find very effectual in mummifying the tumor and blunting its sensitiveness. So prompt, indeed, is the action of this acid as a local anæsthetic, that, immediately after its use, I have quietly snipped off the tumor without the knowledge of the woman. For analogous conditions, Dr. A. W. Edis recommends\* the use of a saturated solution of chromic acid. It should be applied in the same manner as the carbolic acid, but with more care, and should afterwards be neutralized by pledgets of lint dipped in a strong solution of sodium carbonate. In this relation let me say that during a uterine treatment you will occasionally discover a painless caruncle. If pedunculated, snip it off; but if sessile, be wary of touching it, lest its removal should cause the growth of secondary painful ones.

\* *British Medical Journal*, April, 1874, p. 449.

## OTHER AFFECTIONS OF THE FEMALE URETHRA.

There are a few other affections of the female urethra, of which I have no examples to show you, but which you will at long intervals meet with. One of them is a granular erosion of the lining membrane, very analogous to that of the conjunctivæ. The pain in micturition is excruciating, and the whole urethral tract is tender to pressure made by the finger in the vagina. Upon gently stretching open the meatus, you will find the mucous surface highly congested and denuded of epithelium. This will usually yield to repeated applications of undiluted liquid carbolic acid. These should be made by a uterine applicator, and to the whole extent of the diseased mucous membrane. The urethra should immediately afterwards be swabbed out or be injected with sweet oil. This acid may be boldly applied once a week until the local symptoms disappear. In obstinate cases one application of nitric acid, made in precisely the same way, will promptly cure your patient. But its use is open to the very grave objection of often causing an obstinate narrowing of the canal, which may make the woman's condition worse than before.

Another affection of the urethra is prolapse of its mucous coat. This usually happens in children, but you will occasionally see it in adults. It is readily told from a caruncle by its less vivid color, by the absence of bleeding, by a low grade of sensitiveness, and by its involving the whole circumference of the meatus. A cure is here attainable, either by snipping off a thin strip of the prolapsed mucous membrane, or by one or two applications of nitric acid in a narrow streak around its whole circumference. In either case the cicatrization of the wound will be hastened by subsequent touches with the lunar-caustic pencil.

Very rarely, indeed, will the urethra be the seat of a true polypus. When present, it starts usually from a point higher up in the canal, and very generally escapes detection until the patient has passed through several hands. Sometimes it dangles in the bladder, and then stops the flow of urine like a ball-valve. Whenever the act of micturition is obstructed, the phy-

sician should search the bladder for a stone, or other foreign body, and, failing to discover one, should dilate the urethra and explore it with his finger. A polypus should be twisted off, or snared in the noose of a double canula. Once removed, it never returns.

A cancer affecting the urethra primarily is a very rare disease. I have seen but one example of it. The woman suffered from obstruction, and I wished to scrape away the growth, but she would not consent, and I lost sight of her. Once I removed a sarcomatous tumor, which grew from the lower edge of the meatus and blocked it up. This was two years ago, and up to this time it has not returned. If a removal of the morbid mass is not possible, the most that can be done is to keep the canal open by the daily passage of a catheter and the occasional use of a laminaria tent.

The last affection to which I shall advert is not strictly one of the urethra. I refer to inversion of the bladder through this canal, an accident of which several cases have been reported.\* At first blush this may seem to you an impossible accident; but remember how dilatable is this canal. Through it very large calculi and other foreign bodies have been removed from the bladder. Again, in cases of imperforate hymen, or of absence of the vagina, coition usually takes place through the urethra. The treatment here is to replace the bladder, and to narrow the urethral canal by the actual cautery, or by removing a strip of mucous membrane and stitching the edges of the wound together.

\**Gazette Medicale de Paris*, January, 1874, p. 8. *Medical and Surgical Reporter*, February 1st and 8th, 1879, pp. 94 and 115.

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## LESSON III.

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### *Vesical Disorders of Women.*

VERY few women indeed are free from some kind of vesical trouble, coming on at one period or another in the course of life, and this fact leads me to think that a brief consideration of some of these maladies, this morning, will not be unprofitable, more particularly if it enable us to lay down some well-defined principles of treatment. The anatomical peculiarities of the bladder, its position immediately behind the hard symphysis pubis, its relation to and close connection with the womb and vagina, make this organ very liable to be influenced by disturbing elements. Classifying these causes according to their source, we find that for clinical instruction it will suffice to divide them into intrinsic causes, that is, those arising within the bladder, and extrinsic, those whose origin must be sought for outside of the bladder. The disorder itself may be either functional or organic, according to the customary mode of speaking, the latter including cases accompanied by structural change in the tissues; in the former no such local lesion exists, but from nervous sympathy or from reflex action the vesical functions are interfered with to such an extent as to claim the attention of the physician.

Urinary troubles, as you know, are not confined to women; they exist in both sexes; owing, however, to physical peculiarities, such as the shortness and the large bore of the female urethra, and the anatomical relations of the bladder to the pelvic organs, vesical diseases in the female vary considerably from those of the male, and therefore need separate mention. For instance, cystitis, or catarrh of the bladder, is far more frequent in women than in men; but, on the other hand,

on account of the absence of a prostatic gland, and on account of the short and capacious urethra, the former are, as a rule, less profoundly affected by it. Vesical troubles in women may arise from precisely the same causes as those in the other sex, such as urinary calculus, gonorrhœa, irritating urine, or a chill; but the most common source, beyond all question, is some uterine disorder, affecting the bladder either directly, or through reflex action or irritation. The next cause in order of frequency is perhaps hysteria. The third may be represented by a class of injuries sustained by the bladder during labor; for instance, the nipping, or contusion, which it gets from prolonged pressure of the child's head.

Since disorders of the bladder are invariably stubborn, as well as most distressing and annoying to the patient, they are worthy of our careful study. I shall, however, barely refer to the constitutional, or general treatment of such affections as are common to both sexes, since it will not vary in women, and, therefore, comes more properly within the province of my colleague, the professor of surgery. There are, however, for obvious reasons certain points of difference which we need to observe in the local treatment, and to which I shall now call your attention.

Whenever a woman comes to you with a history of frequent or of painful micturition, you must endeavor to seek out the cause, though this is often by no means an easy task. Is it organic, or is it functional, or is it emotional? Does it lie inside or outside of the bladder? are the questions you must ask yourselves, and carefully consider. In general, when the bladder troubles arise from a catarrh of its lining membrane, the recumbent posture gives but little ease; when, however, they spring from such outside causes as displacements of the womb and pelvic tumors, the bed affords marked relief. Sound the bladder for stone, while you examine its base by the index finger passed up into the vagina. Large stones can be felt and even outlined through the anterior wall of the vagina, while a small one will rarely escape detection by this double manipulation. The clinical history of the patient will throw light on the subject; the vesical distress may have followed a labor, and then it is apparent that some internal lesion must exist.

Next consider all the extra vesical causes. Is a uterine tumor or a displaced womb pressing upon the bladder? Is the woman pregnant?—for the gravid womb often annoys the bladder by its bulk. Is the womb fixed by pelvic inflammation, and is the rectum perfectly free from fissure or from hæmorrhoids? Or is the woman hysterical or nervous? If by pursuing this line of inquiry you have happily hit upon the cause, you will next try to remove it, if you can.

To illustrate these preliminary remarks, I shall bring in two patients. The first is a young woman who bore a child about a year ago. Since then she has never been altogether free from womb troubles, but she counts them as nothing when compared with the distressingly urgent and frequent desire to pass water from which she suffers. She tells me that her labor was a short one, but that the *ardor urinæ* did not come until she began to get about. She also says that she is most comfortable when in bed. Now this means either a stone or a foreign body in the cavity, or it means some cause external to the bladder. It does not mean pure cystitis, that is to say a catarrh of the lining membrane of the bladder. Upon passing my index finger into the vagina, I find the neck of the bladder tender to the touch, and, pressing upon it, the enlarged cervix of an over-heavy, retroverted womb. Here is a cause quite sufficient to produce all these symptoms, but I shall jump to no conclusion until I have first sounded the bladder. This I invariably do in such cases, because, if a stone be present, no treatment short of removing the foreign body will do good, and moreover, the absence of a stone will confirm me in my diagnosis. I pass in the sound, and with my finger in the vagina raise the floor of the bladder to meet its tip. Finding no stone, and no rugosities on the bladder walls, in default of any other cause I am forced to conclude that it is the dislocated cervix that is teasing the bladder by its pressure. The remedy here indicated is a pessary, which I shall at once put in, and charge her to wear. But the neck of the bladder may be so tender as to resent the intrusion of so hard a pessary as the Smith-Hodge, which is the best of all. In such a case, give belladonna in some form, and use

the softest pessary you can find; the inflated rubber ring (Fig. 28) is one of the best. Our patient does not complain of the pessary, so that I have no doubt she will be able to wear it, and be ultimately benefited by it, with the assistance of a weekly local treatment to the congested womb. Let me say, in passing, that cases of frequent and painful micturition often occur in overtaken girls, or in sterile women of feeble frames, whose wombs are of natural size, but anteflexed. Now I do not think that, in the majority of these subjects, the dysuria is due to the pressure of the fundus of the womb upon the bladder. On the contrary, I believe the anteflexion to be the natural condition of the womb in virginity and in sterility, and it therefore needs no local treatment, unless dysmenorrhœa be present. Vesical distress, in these cases, is neurotic or emotional, and arises from nervous exhaustion, produced in the one by brain-cramming, and in the other by sexual excess. The bladder is hysterical, if you choose so to label it, and the motto of an hysterical bladder, as regards local treatment, should read, *Noli me tangere*. A long vacation, functional rest, building-up remedies and antispasmodics, are here needed, together with belladonna by the mouth, to allay the local irritation. And, by the way let me here say that belladonna is a good stand-by in almost every form of vesical irritation. I usually give it according to the following prescription, which I can recommend:

R.	Atropiæ,	gr. j	
	Acidi acetici,	gtt. xx	
	Alcoholis,		
	Aquæ,	℥℥	f. ℥iv. M.

S. Four drops before each meal, in a wine-glass full of water. To be increased or diminished according to the constitutional effect.

But the most troublesome and obstinate of all affections of the female bladder is chronic cystitis, which usually starts from the lesions produced by labor. It comes, however, from other causes as well. The worst case I ever saw was due to a single over-distension of the bladder. Some twenty years ago the lady traveled a whole day in a stage-coach, and from motives of delicacy did not empty her bladder. When at her journey's

end, she could not pass her water, and had to call in a physician to draw it off. On that day sufferings began which have not up to this day ended.

Our second patient is a terrible sufferer from this disease. She has been in my hands, off and on, for many months, and I know her history by heart. It is as follows: Her first labor took place some three years ago. It proved a tedious one, and was ended by the forceps. The prolonged pressure of the child's head on the neck of the bladder so bruised it as to cause a very distressing cystitis, which baffled all treatment. In time she grew somewhat better, but a second pregnancy lighted up all the old symptoms, and she came to me when three months gone. In vain I tried all the stock remedies by the mouth, vagina, and rectum. Finally, as she could not come into the hospital for a local treatment, I forcibly dilated her urethra. So much good was gained by this treatment that she was enabled to follow her duties with comparative comfort, and I lost sight of her for many months. But after her second labor she became much worse than before. She tells me that she now is called upon to pass her water from thirty to forty times during the day, and from five to ten times at night. Thoroughly worn out by these endless tormina, she has come to-day to have the operation of forcible stretching repeated. The treatment of cystitis by rapid dilatation of the urethra is somewhat empirical, though not entirely irrational. It presupposes the presence of a fissure in the neck of the bladder, which may or may not exist, and, in so far as that is concerned, its employment is empirical, because we rarely can tell beforehand whether such a lesion is present. But, on the other hand, it over-stretches and temporarily stuns the muscular fibres which surround the whole urethral track, from neck inclusive to meatus exclusive. This permits the escape of the urine with as little pain and spasm as possible. In the majority of cases the dilatation is followed by great relief; often by a lasting cure. In the latter case we should attribute our success to the previous existence of a fissure, healed, as are analogous anal fissures, by the surgical manœuvre of overstretching. Since the fact is generally admitted that

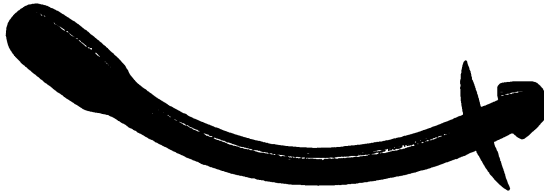
fissure of the sphincter and often succeeds labor, it is by no means improbable to suppose that in like manner fissures may be formed in the urethral mucous membrane. But you must take this on trust, for I have never yet been able to feel what I could swear to as a fissure in the neck of the bladder. Let me show you how to perform this operation. First, of course, etherize your patient as ours has been, for the pain would otherwise be unbearable. Next, pass in a uterine dilator, and gently stretch open the urethra, as I am doing. It distends readily, so as to allow me to coax in, very slowly, my little finger, which has been well greased with carbolated oil. I can feel the sharp edge of the vesical sphincter give way before it, and now it is wholly in. Withdrawing it, I slowly work in my index finger, which goes in still more easily, and will sufficiently stretch the urethra. Now I am able to feel the inner surface of the bladder, which is not thickened and rough, as one would suppose from the severity of the symptoms, but smooth and velvety. I always take this opportunity to explore the bladder for stone or other foreign bodies; for the finger is a sound with brains in it, and, therefore, worth much more than the ordinary metallic sound. Usually the upper margin of the meatus is slightly torn by his operation, and sometimes free bleeding takes place. This, however, I have, with one exception, always been able to stay by a piece of absorbent cotton moistened with Monsel's solution. The exception occurred in the person of this very woman. When I previously dilated her urethra she was pregnant. The vessels of the vulva were accordingly enlarged and engorged, so that the bleeding from the slight rent of the meatus was altogether more than I had bargained for. As no astringent seemed to be of any service, I passed in a needle deep down to the bone, and closed up the wound by a stitch. Those of you on the front seats can see the notch in the meatus still left by the former operation. Candor compels me to mention one objection to this operation, and that is the possibility of permanent incontinence following it. In my own cases this has never happened, but I saw one example of it, in which the thumb had been forced into the bladder.

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But supposing this dilatation does no good; what then? Put the woman to bed; drain off her urine by such a self-retaining catheter as the Skene-Goodman. It is so short that it barely

FIG. 6.



SKENE-GOODMAN CATHETER, NATURAL SIZE.

goes in beyond the neck of the bladder, and the holes in its bulb are so small that the thickened and softened mucous membrane is not likely to be sucked into them and to be torn off, as it will in the ordinary catheter with larger openings. If this should fail, try a milk diet, rest in bed, and large doses of quinia. Inject into the bladder, though never more than an ounce at a time, solutions of the silver nitrate, slowly increasing the strength by two grains every other day, until thirty grains to the ounce are reached. Keep the solution in the bladder not longer than from five to ten seconds, then withdraw it, and, if the pain be great, use a hypodermic of morphia.

Weak solutions of carbolic acid and of salicylic acid are highly spoken of; so especially are a two-grain solution of quinia and a five-grain one of potassic chlorate. Braxton Hicks lauds a two-drop solution of hydrochloric acid. He injects this daily, an ounce at a time, repeating it until the urine flows off clear. He then follows it with one ounce of water, in which from one to two grains of morphia are dissolved.

One hint about the use of the ordinary flexible catheter in these cases: when drawing off the urine do not let the tip of the instrument go much beyond the neck of the bladder, else the mucous membrane will flap down violently upon it and be bruised. When fluids are injected, the tip of the catheter need not enter the bladder at all, but preferably should stop just short of the neck. Sometimes every kind of treatment will

fail, and then we may be obliged to put the bladder at rest by making an artificial vesico-vaginal fistula.

There is another disturbance of the bladder peculiar to females, and that is an inability to hold the water during even such slight succussions as are imparted by laughing, coughing, or by running. This generally happens in women who have borne many children, but I have seen it as well in unmarried women of weak fibre. Apart from ferruginous preparations, the best remedy that I know for this infirmity is a combination of tincture of belladonna, the fluid extract of ergot, and the tincture of nux vomica. If this fails, I should recommend the application of carbolic acid, or even of nitric acid, to the urethra, with proper hygienic treatment.

Stone in the female bladder is far more rare than in the male. Owing to the shortness and the larger bore of the urethra, the calculus, after its escape from the ureter, does not usually lodge in the bladder, but passes away at the first micturition. As a rule, the stones found in the female bladder are not formed in the kidney. They are generally foreign bodies, such especially as hair-pins, introduced from without, and afterwards incrustated with urine salts. Since the urethra is short, and since there is no prostatic gland behind which the stone can hide; since also the whole floor and fundus of the bladder can be lifted up by a finger in the vagina to meet the tip of a sound passed in *per urethram*, a stone in the female bladder is not so likely to elude the search as one in the male bladder. Further, if the diagnosis cannot be fully made out with the sound, the urethra can be dilated and the bladder explored with the finger.

Should the stone be not larger than the girth of the index finger, dilate the urethra to that extent, and remove the foreign body with a delicate pair of forceps. But if it be larger, incurable incontinence of urine will probably follow its removal through the overstretched urethra. It should, therefore, be removed by lithotripsy, if it be soft and small, or by lithotomy, if it be hard or bulky. The operation of vaginal lithotomy in the female is, however, so easy and so safe a one, that it would, in the vast majority of cases, be far better to extract the stone by

incision than by crushing. Vaginal lithotomy is best performed after Emmet's plan.

A sharply-curved uterine sound is introduced into the bladder, and made to push down the base of the bladder at a point just beyond its neck. With a pair of scissors a hole is then snipped into the bladder upon the tip of the sound. One blade of the scissors is then passed into the opening, and the base of the bladder and the anterior wall of the vagina are cut upward in the median line toward the cervix uteri. By following this course the incision will avoid injury to the neck of the bladder and to the ureters. After the stone has been extracted, the lips of the wound are to be brought together by silver sutures, and the case treated like one after the operation of vesico-vaginal fistula. But, if the stone has produced cystitis or great irritability of the bladder, it would be better to leave the incision open, and keep it open until the bladder has become restored to health.

## LESSON IV.

---

### *Fistulæ of the Female Genital Organs.*

URO-GENITAL FISTULÆ; RECTO-VAGINAL FISTULÆ; PERINEO-VAGINAL FISTULÆ.

FISTULOUS communications between two of the pelvic organs are by no means rare. Their names, being taken from the organs they involve, are descriptive of their character. Thus in Fig. 7, A represents the course of a vesico-uterine fistula; B, that of a vesico-utero-vaginal fistula; C, a vesico-vaginal fistula; D, a urethro-vaginal fistula; E, a recto-vaginal fistula; F, a perineo-vaginal fistula.

They may come from accidents, such as a fall upon a stake, from abscesses, from fever-sores in the vagina, or from a stone in the bladder ulcerating its way into the vagina. But in the vast majority of cases they are produced by the lesions of labor, that is to say, from pressure-sloughs, or from the extension of a cervical laceration into the bladder or the rectum.

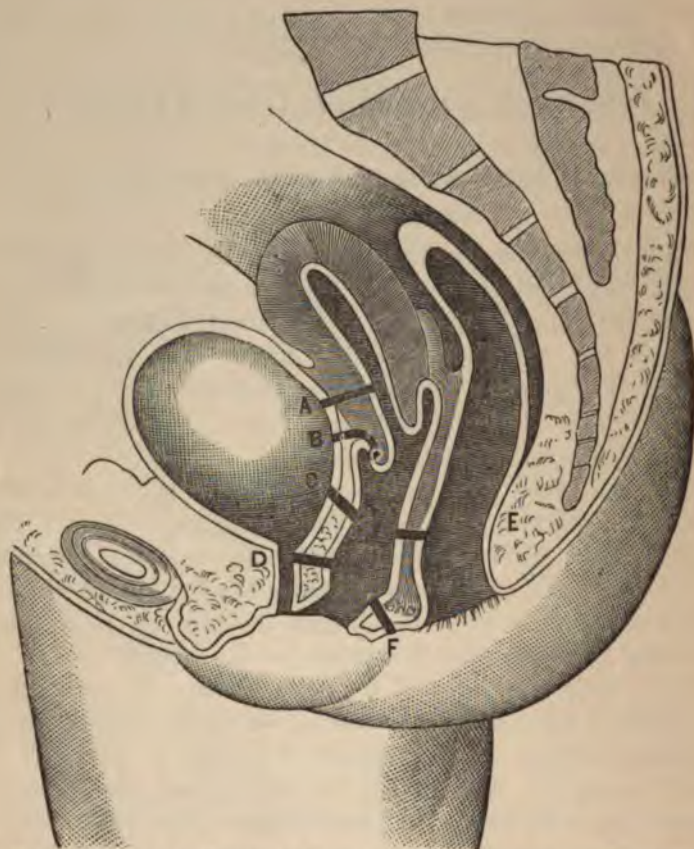
While, then, lacerations of the perineum are too often due to the abuse of the forceps, its disuse or its tardy use leads to the formation of these fistulæ. Hence it is that they are rarely found among the well to do, but among the poor, who are attended by midwives or by inexperienced physicians. In my experience, indeed, no gynecological operation is so unremunerative to the surgeon as the one for this lesion.

The ones most commonly met with are those which form a communication between some portion of the urinary tract and some portion of the genital tract. Of these I shall speak first and at length.

## URO-GENITAL FISTULÆ.

Their history is as follows: A few days after a labor in which the second stage has been protracted, a deep pressure-slough on the vesico-vaginal or the vesico-uterine septum, falls

FIG. 7.



FISTULÆ OF THE GENITAL ORGANS. (MODIFIED FROM BEIGEL).

off, an opening is left between the two organs, and the urine dribbles away *per vaginam*. The treatment should now consist in the introduction of a self-retaining catheter, in cleansing the vagina with repeated carbolyzed injections, and in alternate

applications of nitric acid and of the silver nitrate. By these means I once succeeded in closing the only lesion of this kind that ever occurred in my own practice.

Should this treatment prove unavailing, the opening will degenerate into a fistula, and the woman's life then becomes a burden to her. Always wet with the dribbling urine, her person becomes offensive, and her vulva and thighs sore. Excoriation of the vagina also takes place, the raw surfaces becoming incrustated with urine salts. So far as her own comfort is concerned, she is no better off with a hole in the bladder not large enough to admit a probe, than with one involving the whole base of the bladder; for the former will equally drain off the urine as fast as it is secreted.

Twenty years ago Dieffenbach pronounced these fistulæ to be the opprobrium of the profession. So rarely indeed were they in his time healed, that every cure was heralded in all the medical journals. Now, thanks to the genius of Marion Sims, failures are the exception to the rule.

The means which he devised for the treatment of these fistulæ were firstly, the duck-bill speculum, by which the vagina can be widely stretched open, and the fistula placed within operative reach; secondly, a self-retaining catheter; and thirdly, the silver suture, which is not liable to cut out by ulceration. Next to him, we are indebted to Emmet and Bozeman, of New York, to Agnew, of Philadelphia, and to Simon, of Heidelberg, for great improvements in the details of the operation, and for much instrumental ingenuity in its execution.

The instruments needed for this operation will vary with the taste and the skill of the operator; but there are several which will be found very useful. These will consist of a needle-holder, a few fine lance-pointed needles, several pairs of scissors with right and left curves, two uterine tenacula, a duck-bill speculum, a long rat-toothed forceps with a blunt hook and wire-adjuster at the end of its handle (Fig. 8), scalpels of various sizes, a double-edged knife, two right and left-angled ones (Figs. 9, 10, 11, 12 and 13), a wire-twister and a wire-adjuster (Fig. 14), or in their stead, perforated shot and a shot compressor.

In illustration of these remarks, I shall now bring in a girl with a fistula, unfortunately at the neck of her bladder, and involving both bladder and urethra. I say unfortunately, because at this site two sets of antagonistic muscular fibres interlace, which tend to pull on the edges of the wound and keep them from

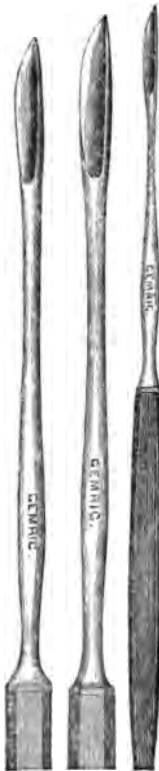
FIG. 8.



9.

10.

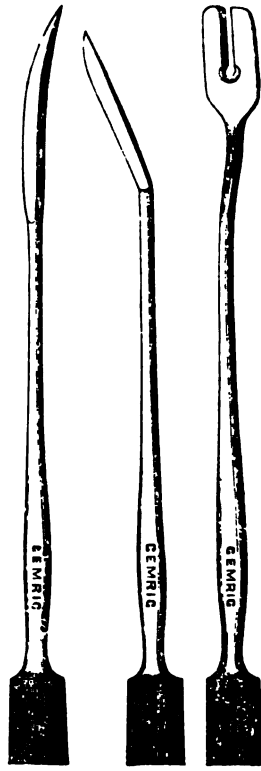
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uniting. The fistula was caused by very unusual means. She had a hysterical bladder, which refused to empty itself without the catheter. Her physician, tired of being sent for at unseasonable hours to drain her water off, very properly taught a member of her family how to do it. One day, the catheter,

which she says was a silver one, broke off near its tip in the bladder. Efforts to remove the fragment *per urethram* failing, an opening was made by her physician from the vagina into the bladder. In lithotomy in the female the incision should begin just above the neck of the bladder, and run upward toward the cervix uteri. It then heals up without any difficulty; the trouble, indeed, lies in trying to keep it open long enough to cure the accompanying cystitis. But for some reason the urethra and neck in this case were both slit open. The lips of the wound refused to knit together. Since that time repeated operations, performed on her by different physicians, have not only wholly failed, but they have enlarged the opening so that it will now admit my finger. A few months ago, I tried my hand at it, but without the slightest gain. The stitches tore out as if the tissues were made of blotting-paper, and the shotted wire-loops hung from either lip of the wound like ear-rings. She was then in wretched health, and I blame myself for having made the attempt; but she had come from a long distance, and I allowed myself to be overpersuaded. She was at once put on large doses of the dried iron sulphate in the form of Blaud's pill, and sent home to recruit.

She returned two weeks ago in very much better health, but the vagina and vulva were so much excoriated that I did not venture to operate on her at once, as she wished. She was put on a preparatory treatment, which has done her so much good that you will do well to charge your memory with its details. All the hair encrusted with urine salts was cut off. The vagina was washed out twice daily with a strong solution of alum, and the sore vulva and perineum smeared over with an ointment of the zinc oxide made as stiff as possible, so as not to be readily washed away by the dribbling urine. Some phosphatic deposits around the fistula were scraped off, and the bleeding surfaces touched with the silver nitrate. Several times, by way of change, all the excoriated surfaces were brushed over with a two per cent. solution of the silver nitrate. I also waited for her catamenia to come and to go; they ended six days ago. Yesterday she took a dose of oil, and this morning one grain of opium.

In what posture shall she be placed? In one of three—the semi-prone, the knee-elbow, and the lithotomy. Of these you will find the last, in the long run, to be the best; but sometimes one posture suits the case better than another. In her case, after examining the fistula in each of the three postures, I found the knee-elbow one to expose the fistula the best. She will, therefore, be put in that position, her chest being supported by a small box to which a pillow has been secured by a roller-bandage.

After introducing a catheter into the bladder as a guide, I begin to denude the edges of the fistula by beveling them down to, but not through, the mucous lining of the bladder and urethra. The edges of the fistula are hooked up by a uterine tenaculum, and the cutting is done partly by a very small double-edged and curved tenotomy knife, and partly by right- and left-handed knives and scissors. The funnel-shaped wound thus made presents the broadest raw surface possible on such a thin septum as that lying between the vagina and the bladder. The stitches will now be passed, about five to the inch, by bending the end of each wire over a silk loop, with which a lance-pointed needle is armed. Aided by the tenaculum, which hooks up the tissues firmly, the needle, held in the jaws of a needle-holder, will enter the vaginal mucous membrane about a quarter of an inch from the denuded edge, and slope upwards until it emerges just at the bladder-edge. It is seized and drawn through, and the opposite edge of the wound is hooked up by the tenaculum. The needle is then carried on by being introduced at a corresponding point near the bladder-edge. As soon as it appears on the vaginal surface, the tenaculum is released from its hold, and its hook is passed over the needle point so as to make counter-pressure. In this manner eight stitches have been passed—six on the wound itself and one at each end—and each one will be secured by a perforated shot. During the operation the urine has been trickling over the wound, and has of course deposited some of its irritating salts on the raw surface. To remove these, and to insure union by the first intention, I shall syringe the wound with water just before each shot is run down and pinched.

Twisting the wires together is the method of securing them mostly in vogue; but if this be done, the wire-adjuster must first be run down each wire to set it. I do not think that it possesses any advantages over the shot, and from long habit I prefer the latter. With them I can estimate the amount of tension on the wires, by them eversion of the lips of the wound is prevented, and they, further, seem to me to act as splints and adjusters.

I have been debating in my mind whether to leave in or not a self-retaining catheter. But, although I have frequently dispensed with it, it seems to me best not to do so in this instance. My reason for concluding to use it is that, since the urethra is involved, the subsequent swelling may occlude it and prevent the woman from passing her water. Should the little holes in the catheter become stopped up by mucus or by phosphatic deposits, they can be cleared by the insertion of the nozzle of a syringe into the free end of the rubber tube, and by the injection of warm water into the bladder. If the bladder resists the intrusion of the catheter, it can be quieted by rectal suppositories containing one grain of the aqueous extract of opium and half a grain of the extract of belladonna. After the first twenty-four hours, the vagina will be washed out twice daily by a three per cent. solution of carbolic acid. The bowels will be kept bound for a week, and then be opened by castor oil. The stitches will be removed from the eighth to the tenth day.

The operation which has just been performed was without complications. The fistula was unusually accessible, the blood-loss trifling, and very little time was needed for denuding the edges and for sewing them up. But such is by no means the case with most of these fistulæ. I have sometimes been over two hours at a single operation, and sometimes been at my wits' end to know how to meet certain complications. It will, therefore, be well for you to have some broad rules of guidance—aphorisms, we will call them.

The best time for operating is during the week following that of menstruation. If done earlier, the flux will be likely to return; if later, to be precipitated. In either case it is liable to

become hemorrhagic, and to mar the success of the operation.

The first thing to be done after the patient has become fully anæsthetized, is to sound the bladder for stone. For there is no doubt, as Dr. H. F. Campbell has shown,\* that the presence of a stone in the bladder during labor is an occasional cause of vesico-vaginal fistula. It is then liable to become incarcerated in some corner of the now always empty bladder, and be overlooked. When the fistula is cured, the distension of the bladder dislodges the stone from its nest, and evokes for the first time the characteristic symptoms of calculus. Thus it has repeatedly happened, that, shortly after the cure of a vesico-vaginal fistula, lithotomy had to be performed in order to extract a large stone.

Sometimes, during the paring of the edges, an artery will spout, or a vein, held open by the inelastic cicatricial tissue in which it lies, will bleed without stint. No complication is more embarrassing than this, for the blood obscures the parts and prevents further paring. A lump of ice or the finger pressed on the bleeding point will usually stop it. A stream of ice water, and one of a saturated solution of alum, projected by a syringe, are the next best hæmostatics. If these fail, a suture must be passed under the vessel, and steady traction made on the ends of the wire until the paring has been finished. The final closure of the wound by the sutures will almost always permanently stop the bleeding. The most provoking accident that can happen is secondary hemorrhage, for it usually destroys the union already gained. If the blood finds vent in the vagina, injections of hot water, or ice-cold injections of solutions of alum or of tannin should be tried; and if these fail, a light tampon may be packed in. If, however, the blood collects in the bladder, the case is a pretty hopeless one so far as union is concerned. Lumps of ice pushed well up into the vagina will sometimes stop further loss, but usually the over-stretching of the bladder has already separated the lips of the wound. Sometimes it will be needful to cut the stitches and secure the vessel by a ligature.

\* *Transactions of American Gynecological Society*, Vol. 1., 1876, p. 354.

In paring the edges of a fistula, try always to cut off one continuous strip. By this means alone can you be sure that no islets of undenuded surface have been left behind. Try also not to cut into the bladder, lest troublesome bleeding should occur.

It is a good rule, further, not to invade the mucous surface of the bladder with the needle; firstly, because each suture-track may become a fistula; and, secondly, because the mouth of one of the ureters may be noosed by a stitch and closed up. If the fistula be circular, its lips should be brought together in the direction of least resistance, whether found to lie at right angles to the vagina or in its axis. Puckering at the poles of such a wound can be avoided by prolonging the surface denudation at each end to a point.

The nearer the fistula to the vulva, the easier the operation. If it be high up and difficult to reach, bring it down either by traction with tenacula on adjacent surfaces of the vagina, or on the cervix uteri. Simon's plan of passing two strong wires through the lips of the cervix, and making firm traction on them, is an excellent one. I can recommend it as greatly facilitating an operation which would otherwise present great difficulties.

The use of the catheter is by no means as needful after the operation as it was supposed at one time to be. The late Dr. Simon dispensed with it altogether; but there is a golden mean better than dogmatism. In small openings there is no need for it. In larger ones the water should be drawn off every four hours, or a good self-retaining catheter be used. The best one is the Skene-Goodman (Fig. 6). Whenever the self-retaining catheter teases the bladder into tormina, it does more harm than good, and should be at once removed. Sometimes it provokes a hemorrhage. A medical friend of mine operated four times, and I once, on the same woman, unsuccessfully. Each time Sims's self-retaining catheter was used, and each time an abundant hemorrhage took place into the bladder. At the sixth time, by withholding the catheter, I saved my patient from having a hemorrhage, and cured her.

Whenever a fistula at the neck of the bladder or in the ure-

thra fails, after several trials, to be cured, before repeating the operation make an artificial fistula higher up. It will drain off the urine and allow the lower fistula to heal up. I am, indeed, not sure but this course would be the best to pursue in the outset, before touching large fistulæ on such embarrassing sites. After the cure of the original fistula, the artificial one will be attended to. As a corollary to this, whenever the edges of a large fistula cannot be made to come together throughout their whole extent, close that end only which is lax, and reserve the rest for another operation. The united portion will in a few weeks' time so stretch the tissues as to make the edges of the ununited portion come together.

The lips of the wound must be exposed to as little tension as possible from the surrounding tissues. All cicatricial bands pulling on the edges of the fistula will, therefore, need cutting. They are made out by the finger better than by the eye, and feel like tight bands. They should be nicked at several places by scissors, and, to prevent their reunion, should be put on the stretch by plugs of glass or of vulcanite, or as Bozeman advises, by sponges enclosed in waterproof bags, made either of rubber or of oiled silk. This may have to be done, and even repeated, weeks before the tense parts are sufficiently softened and stretched for the operation. In bad cases of cicatricial contraction, it constitutes an indispensable preparatory treatment. Often, however, the cutting of these bands can be postponed to the time of the actual operation, for the fistula will close up before these granulating wounds will have healed over. In cases of transverse fistulæ whose edges cannot be brought together Courty relaxes the longitudinal tension of the vagina by making a semicircular incision around the upper half of the *mcatus urinarius*, and by permanent traction on the cervix uteri, by means of a wire passed through the posterior lip and fastened to a piece of cork-wood laid across the vulva.

When the neck of a funnel-shaped fistula is not to be reached, or when a fistula lies in a funnel-shaped hollow of the vagina which cannot be exposed, a ribbon of the surrounding tissue may be removed and the raw surfaces sewed together by over-stitching.

A fistula involving the cervix uteri, as in a vesico-utero-vaginal fistula, or one lying very close to the cervix, and consequently having a lack of yielding tissue around it, is by no means easily cured. The best way to overcome the difficulty is to slit the cervix bilaterally to the vaginal junction, denude the fore lip, and unite it to the lower edge of the fistula. By this treatment, although the cervix is deformed and may give such future trouble as a lacerated cervix will, the woman is not deprived of her capability of procreating. If, however, closure of the fistula in this manner cannot be effected, a strip of vaginal surface behind the cervix must be denuded and united to the freshened free edge of the fistula. The cervix will thus be turned into the bladder, and the woman will thereafter menstruate into that viscus, and of course remain sterile.

If an opening exists between the bladder and the womb, as in a vesico-uterine fistula, a probe should be passed in to find out how high up the supra-vaginal portion of the cervix uteri the fistula lies. If it does not lie too high above the vaginal insertion, the cervix should be slit up to the fistula itself, which is then to be pared and closed by deep cervical stitches. The wound in the cervix will next be sewed up, as in the operation for laceration of the cervix. If the fistula cannot be reached, the cervical canal must be pared and closed up. The woman will thereafter menstruate into the bladder through the fistula, and remain sterile. In one case, however, after such an operation, pregnancy took place. It was accounted for on the supposition that one of the suture-tracks did not immediately close up. The surgeon, J. R. Lane, thinking that the enlargement of the womb was due to retained menstrual fluid, reopened the cervical canal. The woman aborted of a four months' fœtus, and was afterwards cured by a repetition of the operation.

There is another class of uro-genital fistulæ about which, although rare, you will need to know something. I refer to that in which one ureter is involved, while the bladder escapes. It comprises two varieties; the uretero-vaginal and the uretero-uterine. The ureters after entering the pelvis converge towards the cervix uteri, and at points about an inch below the external

os uteri, and from half an inch to three-quarters of an inch to either side of it, reach the outside of the bladder-wall. After running a short distance between the vagina and the bladder, they pierce the latter in an oblique direction. It is at these points in the right and the left anterior cul-de-sac of the vagina that uretero-vaginal fistulæ are found. Still more rare are the uretero-uterine fistulæ. They can take place only by the prolongation of a cervical tear into the vagina as far as the ureter.

Fistulæ of the ureters are, however, more frequently the result of an operation for a vesico-vaginal fistula involving the mouth of one ureter. They are recognized by the secretion of one kidney being evacuated naturally, and by that of the other kidney through the vagina. Also the probe introduced into the fistula will not go into the bladder, but pass up towards the kidney, and, further, milk thrown into the bladder will not discolor the dribbling urine. Then again, if the opening in the cervix or in the vagina be temporarily plugged up by a sponge-tent, or be closed up by a stitch, pain will be felt in one kidney, and all the symptoms of hydronephrosis, or occlusion of the ureter, will present themselves. These fistulæ are extremely hard to treat. Their cure depends, as my friend, Dr. Theophilus Parvin, has practically pointed out, upon the formation in the bladder of a new mouth for the ureter, and upon closing up the fistula without encroaching upon the lumen of the ureter. By making with a trocar a new channel into the bladder for the ureter, and by paring merely the mucous surface of the vagina, together with a portion of the fore lip of the womb, he gained the honor of recording the first case of cure.\*

If, during the course of an ordinary operation for vesico-vaginal fistulæ, little jets of urine are seen to come from the edge of the wound, it is plain that the mouth of one ureter is involved, and will be in danger either of occlusion, or of forming its own fistula. To avoid this accident, the mouth of the ureter should be slit up for half inch inside of the bladder, so as to place it above the grasp of the sutures, and the latter be passed as carefully as possible between the ureter and the vagina.

\* *The Western Journal of Medicine*, Vol. II., 1867, p. 609.

Sometimes a fistula of one ureter is congenital. When the bladder is wanting or is rudimentary, one ureter, or both of them, will open into the umbilicus, or the rectum, or the vagina, or the urethra. Sometimes, although the bladder may be naturally developed, one ureter will go astray and end in the vagina, or very near to the meatus urinarius. The symptoms will be precisely like those previously described. The best paper on the subject is one by Dr. W. H. Baker, of Boston, who met with an example\* in which the ureter ended two lines below and to the left of the meatus urinarius. He cured his patient by the following ingenious operation :

"With a probe in this canal, a Sims's speculum exposing the vagina, an incision was made through the vaginal membrane down upon the probe, one inch and a half from the meatus, and it was then found that, instead of cutting into a fistulous tract, we had opened a ureter, from which the urine now flowed drop by drop, as it had from the minute orifice by the side of the meatus. A uterine probe could now be passed seven inches, which was the length of the instrument, up the course of the left ureter, From the point of incision this ureter was now easily dissected out, which was done for a little more than an inch inward and a portion of the way outward. It was then decided to turn the course of the ureter into the bladder as near the point where it should have gone as possible. Dissecting up the vaginal membrane to the left of the median line at a point one inch from the internal orifice of the urethra, the bladder was punctured ; the ureter was then cut off, enough being left to go through the thickness of the bladder, that the tension might not be too great upon the ureter. The edge of the ureter was then stitched to the lining membrane of the bladder all around the incision through that viscus ; the stitches used (being the only ones at hand) were strong cotton threads, which were cut off short and left to ulcerate into the bladder. The vaginal wound was then closed over the whole, the edges of its membrane being brought together by five silver sutures. A uterine probe being then passed through the urethra into the bladder, could be conducted several inches up the ureter. . . . The urine was drawn off every four hours for several days, then every six hours, until the eighth day after the operation, when the silver sutures being removed, the line of union being perfect, she was allowed to pass her water naturally. From May 22d to May 29th, four of the short cotton stitches, coated with phosphatic deposit, were noticed in the water returned from the bladder, and it was judged that the two remaining had passed unobserved."

\**New York Medical Journal*, December, 1878, p. 578.

Whenever it is impossible to cure a urinary fistula, provided it is not involving a ureter, we are warranted in closing up the vagina, either by transverse obliteration as high up as possible, or, if that cannot be done, by longitudinal obliteration at the vulva. The former is the better plan, because it leaves a smaller reservoir for residual urine, and does not hinder sexual intercourse. It should always be done when possible. A circular strip of mucous membrane is dissected off from the vagina, and the raw surfaces are brought together transversely by interrupted metallic sutures. The vulva is closed, by prolonging upward until they meet under the urethra the wings of the raw surface made for the restoration of a torn perineum.

#### RECTO-VAGINAL FISTULÆ.

Fistulous tracks between the vagina and the rectum are not so common as those between the vagina and the bladder. Neither are they so annoying to the woman, because the act of defecation is not one constantly going on like the secretion of urine. The greatest inconvenience is the involuntary escape of wind and of fluid feces from the bowel into the vagina. Recto-vaginal fistulæ come from the pressure-sloughs and the lacerations to which the vagina is liable during a difficult labor. They come also from abscesses and fever-sores of the recto-vaginal septum, and especially from the ulceration produced by hard feces accumulating and retained *below*—not above—a stricture of the rectum. Occasionally, after the operation for restoring a ruptured perineum, an ununited portion of the wound just above the sphincter will form a fistula. There are several different ways of closing them, and it is well to have each one at one's finger-ends, because the operation, however skillfully performed, is liable to fail.

One operation consists in treating the fistula precisely like a vesico-vaginal fistula—that is, to bevel its edges from the vagina, and introduce interrupted metallic sutures.

A second is to bevel the edges from the rectum, and introduce the sutures from the rectal side.

A third is to bevel both vaginal and rectal margins, and to

put in two sets of interrupted sutures, the one vaginal, the other rectal. In order to avoid the trouble and pain of removing the rectal sutures, I prefer them to be of fine gut. By paralyzing the sphincter ani through overstretching, and by the use of the duck-bill speculum, the fistula can be very generally reached from the rectum.

By a fourth method the recto-vaginal septum is split at the rim of the fistula, and the two sets of opposing flaps are united by rectal and vaginal sutures.

In the fifth, which I can highly recommend, a shallow cut is made around the vaginal mouth of the fistula, about half an inch away from it, and the mucous membrane dissected up to its rim in a frill. This is next inverted and pushed into the rectum through the opening, which is now closed by rectal and vaginal stitches—the former uniting the raw surfaces of the frill, the latter the raw strip around the vaginal rim of the fistula. Should the opening into the rectum be too high up to be reached, the rectal stitches can be passed *per vaginam* in the following manner: Before the mucous frill has been inverted, metallic sutures are passed through its edges, each end of each one entering the raw surface and emerging on the mucous surface. The free ends of the wires are next secured temporarily by twisting them over a perforated shot. After all these sutures have been passed, the shot are pushed through the fistula into the rectum and out through the anus, and the frill is inverted by traction on them. The shot are then run up one by one to the rectal wound and clamped, and the operation is completed by sewing up the vaginal wound.

In each one of these five operations, the sphincter ani should first be paralyzed by overstretching, and the bowels afterwards kept bound for nigh two weeks. This has hitherto been my own plan; but there are not wanting surgeons who advise a daily evacuation of the bowels, and I am by no means sure that they are not right.

Perineo-vaginal fistulæ and blind fistulæ of the labia or of the vagina, need to detain us but a moment. They should be so

dilated or so cut open as to admit of free cauterization, either with a red-hot uterine sound or with nitric acid. Some I have cured by a saturated ethereal tincture of iodine injected into the sinus by means of a hypodermic syringe. If these means fail, the sides of the fistula must be pared and sutures put in.

## LESSON V.

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### *Closure of the Vulva for Incurable Vesico-Vaginal Fistula; Tumors of the Vulva.*

#### CLOSURE OF THE VULVA.

THE first patient brought before you is the one that served as the text of my lecture on vesico-vaginalfistulæ. She was operated upon three weeks ago to-day, and the stitches were cut on the eighth day. Each one held its own, and the wound has united at every point. I attribute my success this time wholly to the improved condition of her health. Her flesh was, therefore, firmer in texture, and more ready to heal. She is not yet able to hold her water longer than two hours; but day by day the bladder walls will stretch more and more, until the natural tolerance will be attained. She has been cured of a distressing infirmity, and goes home very happy. Such results make one proud of one's profession.

Our next case is a very sad one, because it lies beyond the reach of reparative surgery. All that can be done for her is to make her infirmity more bearable. Thirteen years ago this woman went into her first labor. The arm presented, and, as she lived on a farm many miles from her physician, by the time that he arrived the shoulder had become so tightly jammed into the pelvis, that version could not be performed. He sent for a friend, who, after repeated trials, also failed. As ether could not be procured without very great delay, and as there seemed to be a tendency to spontaneous evolution, they waited for the natural delivery of the child. This ultimately took place very unexpectedly; but, as the result of long-continued pressure, extensive sloughing followed. The whole base of the bladder, and

a large part of the urethra, have been destroyed ; while all that is left of the vagina is a short, jagged and gristly hole, which will not admit my index finger. Since that time she has suffered so much from the excoriation of her person, caused by the constantly dribbling urine, as to become an opium-eater. You can see for yourselves how the skin resents the intrusion of the urine, and yet it by no means looks so angry as when she first came into my hands. It was then raw in patches and incrustated with the lime-salts of the urine ; but applications of a stiff oxide of zinc ointment, and repeated lotions and vaginal injections of strong alum water, have done much good.

The relation of the parts has become so much disturbed by cicatricial contraction, that I have not yet been able to discover exactly where the womb lies. It undoubtedly exists, for she has twice menstruated during the past thirteen years ; but it has probably been turned into the bladder, or been so matted in dense structures as to elude my search. It has also most likely taken on atrophy, and become functionally destroyed. This a curious fact which I am sure takes place ; for twice under like circumstances, after a prolonged search under ether, I found an infantile womb. Nor can I otherwise explain the infrequent menstruation, and even amenorrhœa, which so commonly attend the presence of vesico-vaginal fistulæ. Perhaps the severe injury which the reproductive apparatus has sustained stuns it and stunts it, or perhaps the dribbling of urine over these sensitive structures quenches all sexual desire. At any rate, a woman with a hole in her bladder is unfit for the marriage relations ; and, from this point of view, it is, perhaps, a fortunate circumstance that our patient's husband died very shortly after her delivery.

She has consulted many surgeons and specialists—she tells me that I am the eighteenth—but they all shook their heads over the case, for it was plain enough that there was no chance whatever of closing up the fistula, and of making a new urethra. Since there is no urethra, and not vaginal tissue enough left to come together, transverse obliteration of the vagina is out of question. I thought, however, that if a permanent opening

were made through the recto-vaginal septum into the rectum, I might safely close up the vulva and urethral ring, and convert the lower bowel into a bladder. I was emboldened to recommend this step, because a very analogous operation had succeeded in the hands of my friend Dr. W. W. Keen. His patient had an incurable vesico-vaginal and recto-vaginal fistula, as sequels to the sloughing sores of typhoid fever. I aided him in closing up the vulva, and he has since told me that she is now able to hold her urine in the rectum for hours before voiding it. So, by means of the galvano-caustic loop, I burnt a hole through the vagina into the rectum, and made an artificial recto-vaginal fistula. This was done some weeks ago, and since there now appears to be no danger of its healing up, I purpose to-day to close up the vulva.

I begin by shaving off the hair from each side of the vulva where I intend to put in my stitches. The hair removed, I at once set to work snipping off the skin with a pair of curved scissors, beginning below so that the parts may not be obscured by the blood. Every now and then a little artery spurts, which I at once secure with a *serre-fine*. Scissors do not always behave well under these circumstances; their edges may not be perfectly true; still I prefer their half-crushing action to that of the knife. They do away with a great deal of bleeding. And let me give you hint a about scissors which few physicians know, and which, to my cost, some instrument-makers forget or overlook. The thumb always tends to push the ring of its blade away from the palm of the hand, and the finger to draw its ring towards the palm. Hence, to keep the cutting edges in close contact, the finger blade should invariably ride the thumb blade. While talking I have carefully snipped off the skin and mucous membrane well into the vagina on each side. I make the assistants relax their hold every now and then, so that I may fit the sides accurately together. At the entrance of the meatus the dissection must be done with caution, for should any of the veins of the bulbs be cut, very annoying bleeding might ensue. Having pared off all the mucous membrane needful on each side, I am ready to put in the sutures. I first,

however, cut off these "aprons," the nymphæ, for they are no longer of use, and will only interfere with the accurate healing of the sides. I put my first suture in on a level with the upper margin of the anus, and pass it out at the other side with one sweep. The other stitches will come out at the edge of the denuded vaginal surface. These sutures must include tissue enough to prevent them from tearing out. To attain this end I thrust the needle straight back at first, and then direct its point towards the vagina. At the last stitch, that nearest the symphysis pubis, I have again passed my needle all the way round with one sweep. The greatest difficulty always is to make the points of exit and of entrance of the sutures exactly opposite. Before tightening each suture, I syringe out the part carefully, so as to wash away all the urine from the surface of the wound. In fastening the sutures I use shot, and always two of them for each of the lower stitches. All the sutures are now clamped, and a flexible catheter will be passed through the anus and fistula into the woman's bladder. The patient's knees will now be bound together, and opium enough must be administered to lull the pain and lock up the bowels for eight or nine days. Before binding the knees together, a pad will be placed between them.

It is four weeks to-day since I closed the vulva of this patient; and I bring her again before you to show the result. When the stitches were removed on the ninth day, the union was found complete, except at the site of the meatus urinarius. I attributed the existence of this opening to the fact that, underrating the strength of the sphincter ani, I had used a flexible tube instead of a silver catheter, to drain off the urine, and that the contractions of the anal muscle had so compressed and closed the softened tube, as to force the urine to find other means of egress, which it did by working out its way just below the symphysis. A few days later I closed this fistulous opening, dissecting up a raw frill all around it, and turning it into the opening. This was successful, and I am happy to say that the woman now gets up only twice during the night to make water.

At first, the rectum resented the intrusion of the urine, and she had an evacuation of her bowels every "seven minutes," as she declared; but now she goes to stool but once every two hours during the day-time.

To-day I intend to remove two internal piles which are greatly annoying her. Were I to snip them off, my patient would probably bleed to death, so I shall tie them. It is customary to transfix the stem of a pile and then tie it on both sides, but I shall cut a little groove in the skin and tie a thread around the stem without transfixing it. For this purpose I am in the habit of using English plaited thread of three strands. All the blood vessels enter a pile from its upper margin. Nicks and grooves in which the thread can be tied may therefore be cut in the lower side with impunity. Here is another surface pile which can be cut off without tying. There is only a little bleeding; to stop this I shall cauterize the stump.

Of course this woman, fortunately a widow, will have to remain single for the rest of her life. Her reproductive organs are of no use whatsoever. In spite, however, of this condition, the patient's mental and moral condition has been vastly improved by the operation. If her rectum should at any time begin to show signs of persistent and irremediable irritation, there would be nothing left for me to do but to reopen the vulva and close up the recto-vaginal opening. From the present favorable symptoms, I hope that nothing of the sort will ever be necessary.

#### TUMORS OF THE VULVA.

The woman who has just been wheeled in on the operating table is afflicted by two growths, one of which is quite rare. As I expose her abdomen, you see how enlarged it is by some bosselated tumor. It is a very large fibroid tumor of the womb, and of stony hardness. It gives her very little trouble, however, and I therefore shall have nothing to do with it to-day. But as I expose her thighs you see that her vulva is wholly concealed by a very large tumor of the left *labium majus*. It reaches, when she stands up, as far as her knee. It is by far the

largest tumor of this region that I have ever seen, and I have, therefore, had it sketched by (Fig. 15) an artist.

Upon my first examination of it, fluctuation seemed so sure, that I pronounced it to be a cystic tumor containing fluid, and in this diagnosis I had the concurrence of two of my colleagues. But the exploratory plunge of an aspirator-needle resulted in a dry tapping, and I have come to the conclusion that it is an adipose tumor. Each *labium majus* consists of a fold of integument, cutaneous externally and mucous internally, which passes down from the *mons veneris* to meet its fellow at the fourchette. Each labium, being the analogue of half the scrotum, contains

FIG. 15.



ADIPOSE TUMOR OF LEFT LABIUM.

within itself a sac formed of fibro-elastic tissue, which arises from each abdominal ring and extends down to the fourchette. These sacs are filled with adipose tissue, which gives symmetry to the part, unless, as in this case, it takes on abnormal growth.

Tumors of the vulva are either cystic or solid. The cystic ones are of two kinds. One is a serous cyst of the labium; the other a retention cyst, or dilatation of one of the vulvo-vaginal glands, which lie on either side of the vulval entrance, and whose ducts open in front of the hymen or of its remnants. These glands, by the way, secrete a lubricating fluid, which

being occasionally ejaculated in jets during the sexual orgasm, gave rise to the ancient belief in the existence of two semens, the one male, the other female. Examples of each kind of cyst I have brought before you, and one of them, you will remember, was caused by occlusion of the duct of the left vulvo-vaginal gland from an operation for lacerated perineum. They are cured sometimes by emptying the cysts with an aspirator or with a hypodermic syringe, and by injecting them with a strong tincture of iodine; sometimes by laying them open from their mucous surface and cauterizing them thoroughly with the silver nitrate.

The solid tumors of the vulva are also of two kinds, either fibrous in structure or adipose, the former being perhaps the more frequent. The growth-rate of the fibroid tumors is slow, and they give but little annoyance except from their bulk. Sometimes, like analogous tumors of the womb, they contain calcareous plates. They always tend from gravity to lengthen out the portion of the labium in which they are imbedded, and to become pedunculated. Twice have I seen the connecting stalk over an inch in length, and not thicker than my little finger. It is, therefore, well to avoid hasty surgical interference, so as to give them time to become pedunculated. The chain, or the wire-ecraseur, will then safely remove them. If the pedicle be thick, it may be transfixed by a bistoury, and each half crushed through separately. But adipose tumors do not behave in this way. They merely distend the sac, and do not become pedunculated, but assume a pyriform shape like this one: Hence they are removable only by careful dissection.

Seizing the growth, I make an S-shaped incision from its neck to its base. This gives me more working room, for a double curved cut is longer than a straight one. With the handle of my knife and with my finger nails, I am now rapidly dissecting it away from its bed in the sac, and I find that it is an adipose tumor. With an occasional nick of my knife, I shell it out more and more, until now I have reached its stem, if I may so call it. But this appears to be so firmly attached to the pubic bone, and is so dense and possibly vascular, that I shall sever it with the

wire-ecraseur. You can now see what a large tumor it is, and as I tap it with my finger, while it lies on my hand, I get an impulse-wave very like that of fluctuation. The feeling is so deceptive a one, that I really cannot blame myself for making the error of diagnosis at my first examinations. The operation has proved comparatively a bloodless one. Very few vessels need tying. As my hour is nearly over, I shall leisurely close this large wound up in my private room, taking good care to leave a good-sized drainage opening in the lower angle.

But, one word in regard to tumors of the clitoris. These are usually either cancerous or syphilitic, and should be removed by the galvano-caustic loop. There is also another tumor of the vulva which you will occasionally meet with in pregnant women, and that is a hypertrophy of one of the *carunculæ myrtiformes*. It is not necessarily a syphilitic vegetation, as the abnormal growths at this site usually are; but a non-specific growth, produced by the vascularity of the parts. Do not cut it off, but wait for its absorption during child-bed. It usually disappears then; but if not, you may remove it.

## LESSON VI.

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### *On the Causes, the Prevention, and the Cure of Laceration of the Female Perineum.*

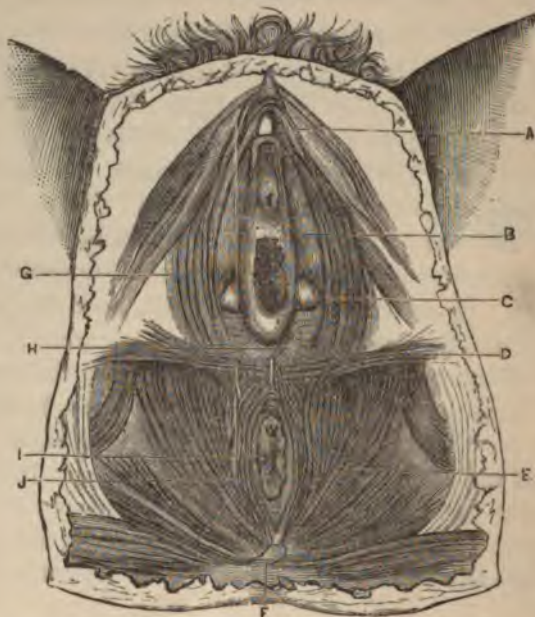
#### PRIMARY OPERATION.

HERE is a fine-looking young woman, twenty-eight years old, who comes to us in sad plight. Ten years ago, in her first labor, she met with the mishap of having her perineum very badly torn. The rent extends through the sphincter ani, and three-quarters of an inch up the bowel. The waters drained off early, and the labor, consequently, became a tedious one. Her physician, a man of large experience, very properly put on the forceps. In delivering the head, this rent happened, as it will sometimes happen in spite of the best care. I shall not, therefore, blame the physician; nor can I afford to be uncharitable, for I once met with the same disaster. As I separate the labia you see that the perineum has disappeared, and that the vagina and rectum end in one common opening. It is an ugly-looking rent, but bad as it is, she did not discover it until after getting up. Then her troubles began in earnest, and they have grown more and more exacting, until she has been driven to us for relief.

What the nature of these troubles is, you will best understand by consulting this diagram (Fig. 16), which is reduced from Savage's excellent plate. From it you see that the floor of the female pelvis is made up of a mass of muscles so interlaced that hardly one of them has a special property which is not in a measure shared by the others. Upon removing the skin and superficial fascia, we come, midway between the lower vulval commissure and the anus, to a highly elastic and dense white

tendinous structure, called the perineal body (H). It seems to be made by the fusion of several muscles which meet there. Thus, the external sphincter ani (J), which starts from the coccyx (F), surrounds the anus (I), and is inserted in the perineal body. So, on either side, does the transversus perinei (D). On the other hand, each sphincter vaginæ (G), called also bulbo-cavernosus or compressor bulbi, arises below in the perineal body and sphincter ani, passes up around the vulval opening like a fleshy ring, and converges to meet its fellow over the dorsum

FIG. 16.



of the clitoris (A). The property of this muscle is to pull down the rigid clitoris into contact with the male organ, to squeeze out the contents of the vulvo-vaginal glands (C), and to compress the dorsal vein, as well as the bulbs of the vagina (B), so as to obstruct mechanically the current of blood and produce a turgescence of these erectile organs. The levator ani (E) is the next important and powerful muscle of this group. It arises from the ramus of the pubes and the spine of the

ischium, and is inserted into the coccyx and the sides of the vagina and of the rectum. By these attachments, and by interlacements with the corresponding muscle on the opposite side, it and its fellow constitute the true constrictor of the vagina.

Now, without further comment, a mere glance at this diagram shows that the loss of every fibre at the point of fusion of these muscles entails a corresponding loss of power in the floor of the pelvis, and a consequent impairment of support to the reproductive organs. The sustaining power of the vaginal column depends upon the integrity of its perineal abutment. It is the tonicity of the vaginal walls and the pelvic attachments of the uterus that mainly keep the nicely-poised womb in place. These, in a case of torn perineum, may not at once yield; but they will sooner or later; for air gains access to the womb, irritating and congesting it to such a degree that it will ultimately flex or prolapse from an acquired hypertrophy. The air thus sucked up into the vagina is very liable to escape audibly, constituting that very mortifying disorder which our Teutonic brothers call "garburity of the vagina." The anterior wall of the vagina, being now unsupported, will descend, dragging with it the bladder. The greater the rent, the greater will be the dislocation of the pelvic organs, and the greater the evils entailed. Again, rents of this kind are attended with more or less impairment of the sexual functions. Thus, from the injury sustained by the perineal body, the vulva becomes enlarged, the vagina relaxed, the bulbs of the vagina but slightly compressed, and the sexual act blunted on the part of the male, and imperfectly responded to by the female. Partly from this lack of reciprocity, and partly from the necessarily shortened vagina, which rejects the semen as soon as ejaculated, the woman, like the patient before us, often remains barren. But should the rent traverse the whole perineum and divide the anal sphincters, or extend through the recto-vaginal septum, then, in addition to the above train of evils, there will be an involuntary escape of flatus, and an incontinence of the feces when at all liquid.

For ten years this woman's clothing has been soiled without warning. She is often waked up at night by an involuntary

movement of the bowels. She is liable, no matter when or where, to break wind; and she, therefore, stays at home. She told me, with tears, that her person has become repulsive to her husband, and that her friends shun her company. To a young woman, to a young wife, few calamities can be more grievous, and she bitterly denounces her physician.

Another young married lady, whose perineum I restored not long ago, used to keep her bowels costive by daily doses of opium. But, however bound they were, she would soil her linen whenever it thundered or she otherwise became nervous. Every two or three weeks she was obliged to take an aperient, and would then have to spend many hours on the commode—"seventeen hours" on one occasion after taking a dose of castor-oil. In order to spare herself the mortification of breaking wind before others, this lady shunned the society of her friends, and secluded herself in her bedroom. She did not even join the family at their meals; she never went out until after dusk, and never dared to ride in a street-car. Altogether, she was in a sorry plight. It is indeed a sad infirmity; yet, gentlemen, in a busy life very few of you will escape from seeing it happen, in some form or other, in your practice. It behooves you, therefore, to know how to treat it, and better still, how to avoid it.

An ounce of prevention being worth a pound of cure, let us inquire into the causes of these lacerations, in order that being forewarned we may be forearmed against them.

These, without minute specification, may be summed up as follows: 1st, Rigidity, dryness and congestion of the soft parts, as in first labors. 2d, Absolute or relative disproportion between the size of the head or of the shoulders, and that of the vulva. This also includes the presence of one forearm, or both, along with the shoulders. 3d, Every cause, whether moral, anatomical or physiological, that precipitates the passage of the head through the soft parts—as, for instance, violent straining efforts through great nervous excitement, a small head, a straight sacrum, or an overdose of ergot. 4th, Faulty mechanism of labor, such as incomplete flexion or extension of the head; or an occiput rotating posteriorly. 5th, Keeping the

limbs straight and in close contact at the moment of the birth of the head. 6th, Causes dependent on the physician, such as the abuse of the forceps, a faulty method of supporting the perineum, or meddlesome midwifery.

For cases of rigidity, or of disproportion, or of an undersized vulval opening, anæsthetics will be found of great service. They will also restore moisture to a dry and congested perineum, and curb uncontrollable expulsive pains.

Misdirected traction on the after-coming head, viz., too much in a downward direction as the head is about to emerge, causes the chin to hook over the perineum, and is in a primipara very commonly followed by a bad rent. The lesson, therefore, taught is, at the close of a breech-labor needing help, to turn the woman on her back, to separate the knees, and to carry the child's body well up between them.

My time is too limited to enlarge on all the causes of lacerated perineum; but there are two special and salient ones on which I wish merely to break ground. One cause is the common, and, as I hold, faulty mode of supporting the perineum. The problem seeking solution is this: Given a fetal head, and a vulva through which it must pass, how can the perineum be kept from tearing? Well, this problem looks simple enough, and yet, let me tell you, it is the riddle of the Sphinx. Every physician has literally tried his hand at it, and every one has come to grief. Never yet has it been solved.

One advocates pressure on the perineum with a folded napkin; another with an unfolded napkin; a third scouts all napkins, whether folded or unfolded. One plugs up the rectum; another empties it. The perineum is pushed forward by some, and backward by others. Some place their hand transversely across the perineum; some longitudinally, with the fingers looking upward; some longitudinally, with the fingers looking downward. As runs our nursery rhyme: "Simon says, 'thumbs up!' Simon says, 'thumbs down!'" and yet the perineum would tear, and tear it will, until woman becomes—like the cherubs of the old masters—all wings and no body.

Now, to my thinking, all this diversity of opinion—and,

mind you, I have not given you a tithe of the different modes of "supporting the perineum," as it is technically called—means that Nature herself intends to take care of the perineum, precisely as she does the preceding stages of labor, and that she can very generally do it better than a physician. But supposing that the case is a morbid one, and really needs help; or else, that you cannot, for the life of you, keep your hands off—what is to be done? Why, imitate Nature. She retards the too rapidly advancing head, and that by making the woman cry out—which at once stops the expulsive pains. You will retard the head by making direct pressure, *direct pressure*, I say, on it.

The word "support," as applied to the perineum, is a misnomer. It is not the perineum that needs support, but the head that needs support. By supporting the head we support the perineum. If the ordinary mode of "support" ever does any good, it is by retarding, through the interposed perineum, the advance of the head. But the good thus gained is more than counterbalanced by the evil. Continuous, firm pressure, with the hand, makes the perineum hot, dry and unyielding. It also hinders it from undergoing equable dilatation; for the compressed portion cannot take its share of the general tension, and the strain is thrown on the fourchette. Bruised, congested and benumbed, by such support, the perineum is no longer a living tissue, capable of responding intelligently, so to speak, to the requirements of the occasion—when to solicit, when to repel the advance of the head: again, in the last throes, when such support is, if ever, most needed, the woman is very likely to jerk herself away, and the abruptly released perineum suffers.

Make, then, your support, or retarding pressure, directly to the head itself, and not on the perineum; not through a fleshy medium which needs perfect freedom from all restraint, in order to undergo the requisite and inevitable amount of dilatation. For many years I have not touched a perineum for the purpose of saving it. Sometimes I do nothing; at other times I make simply a retarding and guiding pressure with my fingers and thumb spread over the head of the child as it crowns. When the perineum is very rigid, I relax it, by hooking up and pulling forward

the sphincter ani, with two fingers passed into the rectum, while with the thumb of the same hand I make the needful restraining pressure upon the head. For this method I claim the following advantages: (*a*) By pulling up the sphincter ani towards the pubes, not only is nature imitated, which always dilates the anal orifice, but the perineum is brought forward without direct pressure, and its dilatation is diffused over its whole surface, causing a corresponding relaxation of the strain on the posterior commissure in the line of its raphé. In addition, its muscular fibres are crowded up to, and consequently strengthen, the line of greatest tension; just as a prudent general hurries up reinforcements to the point of attack. (*b*) The same force which dilates the sphincter ani compels the occiput to hug the pubes and favors extension, especially if the fingers in the rectum are hooked over the prominences of the foetal face or over the chin. (*c*) This aid is not liable to sudden interruption from the movements of the woman. (*d*) The thumb of the same hand, together, if needful, with the fingers of the free hand, can by direct pressure upon the presenting part restrain its too rapid advance without exciting that reflex uterine action which is so frequently evoked by the irritation of contact with the perineum. (*e*) The circulation of blood remains free; the nerves are not benumbed by a double pressure, viz., by that of the hand and that of the presenting part; and the perineum, therefore, continues in its natural condition, that of a living, elastic and sentient tissue.

A faulty method, then, of supporting the perineum, plays an important part in the production of these lacerations. But they very generally stop at the sphincter ani, and are rarely complete. When, however, the rent is a complete one, involving the bowel, you will commonly find that, as in our patient, the third stage of labor has been ended by the forceps. Not a winter passes by without the appearance before you of several such cases. This ought not to be so, but it is so; and why is it so? For many reasons, but at which I have time only to hint. Thus, through false delicacy, many physicians apply the forceps and deliver the woman under a sheet. They work in the dark, and cannot see what they are about. Again, in difficult forceps-

cases, the worn-out physician is tempted to brace his feet against the edge of the bedstead. But braced traction means uncontrollable traction; and when the head jerks past the brim, it is very likely, before the physician can recover himself, to tear its way out through the perineum. Or the forceps may slip off, and the physician suddenly finds himself on his back, or brought up all standing by the opposite wall. At best, by the use of the forceps the head is liable to be brought down too quickly upon undilated soft parts, and to be prematurely delivered. Skilled physicians are constantly doing this, and so will you, unless you follow the advice I am about to give. To tell you the truth, such grave lesions to the mother, and, for the matter of that, to the child also, from the use of the forceps, are so constantly brought to my attention, that I am disposed to accept Baudelocque's dictum, that, take it for all, "The forceps has been more injurious than useful to society." My advice, therefore, to you—and you will find it a very safe one to go by—is that, in general, and always with primiparæ, you take off your forceps as soon as the perineum begins to bulge, and that you leave the final delivery of the head to the expulsive efforts of your patient.

Yet there are cases in which the very use of the forceps protects the perineum. Thus, for instance, whenever the pubic arch is too narrow, the sacrum is too straight, or the head, in an occipito-anterior position, is over-flexed, and the vertex bears on the perineal centre and threatens to perforate it; whenever, in an occipito-posterior position, the head is too little flexed, the forceps is urgently needed.

But supposing that, in spite of the greatest care, a rent has happened. What is now to be done? First, discover the rent. You smile—but not so fast! Through over-delicacy on the part of the medical attendant, lacerations are over and over again escaping his notice, until it is too late to do anything. I have operated on several cases in which the woman has assured me that the discovery was not made until the bowels, after a purge, had proved uncontrollable. So was it with our patient's physician. So will it be with you, unless you make it an inflex-

ible rule after every delivery, either to look at the perineum, or to gauge its thickness between the thumb in the vagina and the index finger in the rectum. Don't forget this.

If a rent be discovered, decently inspect the parts. By daylight this examination can usually be made without the knowledge of the patient. When candle-light is needed, you may be compelled either to make some excuse or boldly to explain your object. Sometimes a formidable hemorrhage takes place from the perineal wound, and yet you will not discover its source unless you have all your wits about you. You will naturally infer that it comes from the womb, and will, accordingly, mistreat it by resorting to the usual remedies for post-partum hemorrhage. Make it, therefore, an inflexible rule to stretch open the vulva and visually examine the perineum and the vestibule, whenever blood seems to escape from a firmly-contracted womb. Although labor is the common, yet it is not the inviolable, cause of these lacerations. Several cases are on record which happened from the breaking of a cracked chamber-pot. Women have been gored in this portion of the body by cattle. In sliding down the sides of hay-ricks they have been impaled by the handle of a rake, of a hoe, or of some other implement. But, whatever the cause, the treatment is of course the same.

Since so large a share of a woman's health and happiness depends upon the integrity of her perineum, what should be your rule of action when she meets with this injury? Unless the rent is simply cutaneous, or very slight indeed, and not extending much beyond the fourchette, it should not be left to nature, for nature is here too capricious to be trusted. You must therefore, make a clean breast of the mishap to the patient, and perform the primary, or immediate operation—that is to say, you must at once sew up the wound. Now, although this advice is sharply criticised by some very good authorities, I offer it to you with the greatest confidence of its soundness. The fears of septicæmia, entertained by some physicians, are purely hypothetical; for, although the suture-tracks form, in one sense, new foci of infection, yet they close up a raw surface, whose area is vastly larger than theirs. Should hemorrhage be present,

the sutures will invariably check it. Clinical experience proves that a very large measure of success follows the immediate operation. Further, it is far more rational to take advantage of the necessary confinement in bed after delivery, and to close the wound at once, while its surface is raw and the maternal soft parts are comparatively numb and insensible, than to postpone the operation to a time when the woman shall be nursing, when the cicatrized flaps shall demand quite a formidable and tedious operation for their denudation, and when a special confinement in bed for two weeks or more will be needed. Had the immediate operation been performed on this woman, she would, most likely, have been spared years of suffering, and the tedious secondary operation which she has made up her mind to undergo next week.

Immediately after the delivery of the placenta, pass deeply two, three, or more wire sutures, securing each one by merely twisting its ends together. Each suture is entered about an inch from the cutaneous margin of the wound, and each one excepting the lowest is made to emerge on the mucous membrane of the vagina, very near to the edge of the raw surface. The lowest stitch should always be entered a little below the lower angle or fork of the wound, and lie buried in the recto-vaginal septum, as represented by the dotted lines in this diagram (Fig. 17). But as the sutures are passed in pretty much the same way, in both the primary and the secondary operation, I shall have more to tell you about them when I come to operate on our patient. Let me however add that you may merely twist the ends of the wires together in the primary operation, and not clamp them, because the parts are now relaxed, and there will not be much tension on the stitches. Do this with a good light, and at once, while the wound is fresh, and the perineum lax and comparatively numb and insensible from the pressure and the passage of the head.

Under such conditions ether is not ordinarily needed; you are merely giving a dressing to the wound, and that the very best dressing it can have. Should the lochia obscure the parts, dam them back by a sponge pushed high up. And don't for-

get to remove the sponge before you begin to twist the ends of the wires together. Then draw your patient's water, put a pad between her knees, and bind them together. If the rent be an incomplete one—that is, not extending into the sphincter—you need do nothing more than keep the bowels bound by opium, remove the stitches on the sixth or seventh day, and give oil or a saline cathartic on the day following. But, should the rent be a complete one, the sphincter ani being torn through, you will

FIG. 17.



THIS DIAGRAM REPRESENTS THE PRIMARY AND SECONDARY OPERATION WHEN THE SPHINCTER ANI IS NOT INJURED.

take precisely the same precautions in regard to the bowels and the bladder, as I shall enjoin upon you when describing the after-treatment of the secondary operation.

While warmly advocating the primary operation, I have not found it on the whole so successful as the secondary. By the former I have had thus far three failures; by the latter but one. This lack of success is said to be owing to the flurry usually attending the immediate operation and the lack of skilled assist-

ants, to the irregular surface of the rent which prevents exact coaptation, and to the lochial discharges which insinuate themselves between the surfaces of the wound and hinder union. Two of my cases of failure were, however, dependent upon other causes. In one, the woman, in a fit of mania, jumped out of bed to throw herself out of the window, and, of course, tore out the stitches. In the other—to which I was called by the attending physician—a violent diarrhoea set in on the third day, resulting in a recto-vaginal fistula, which I afterwards succeeded in closing. If upon removing the stitches you find no union, do not give up in despair, but try to promote healthy granulations by keeping the parts sweet and clean, and by placing in the fork of the wound a pledget of lint dipped in a solution of chloral just strong enough to produce some tingling. By these means you may yet hope to save your credit by getting a bridge of granulations thrown over the anal gap, or more or less of very good union.

Let me here say that rents may also occur, during childbirth, in the neighborhood of the meatus urinarius. Fatal hemorrhage has been reported from such accidents. I have occasionally met with them, and twice had to resort to styptics. If the bleeding be not thus checked, the rent should be closed by fine sutures.

## LESSON VII

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### *Secondary Operation for Laceration of the Female Perineum.*

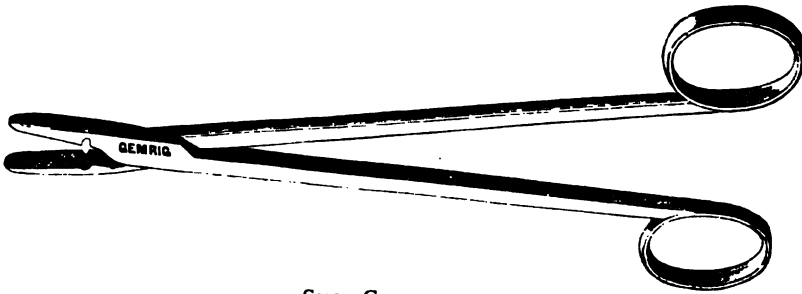
YOU will remember, gentlemen, that when we last met, I spoke of the causes and the prevention of laceration of the perineum, and left off after describing the primary operation for its cure. Now, suppose you utterly fail to get union by the immediate introduction of sutures, what is next to be done? Wait until the wound has cicatrized, and the woman has wholly recovered from her lying-in. Then reconstruct her perineum by the operation which I am now about to perform upon the patient whom you saw at my last lecture.

Here she lies before us, because she missed the golden opportunity for immediate repair. The broken ends of the anal-muscle have retracted. The parts are rigid, and otherwise deformed by cicatricial contraction. The chance for the simple suture-dressing has gone by, and she now will be compelled to undergo a tedious and bloody secondary operation.

She is in as fair health as a woman thus afflicted can be. Had she a diarrhœa or a cold, I should postpone the operation; for one untimely movement of the bowels, or the succussions from incessant coughing or from sneezing, would interfere with union. Were she nursing, I should, both for her sake and for that of the child, advise delay until the child had been weaned. Nor should the operation be performed just before a monthly period, but a few days after. Early yesterday morning she took a full dose of oil, and this morning one grain of opium in order to restrain the bowels from further action. To avoid ether-vomiting, she has eaten a very light breakfast.

The instruments needed for this operation are as follows; an ordinary scalpel and a pair of scissors curved on the flat; a long-handled rat-toothed forceps; half a dozen *serres-fines*; a few perforated "number-one" shot, and a shot compressor

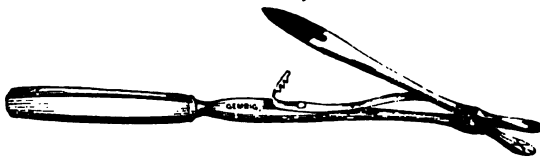
FIG. 18.



SHOT-COMPRESSOR.

(Fig. 18); a self-retaining catheter; one blunt-edged perineum needle, with an eye near its point; silver wire, several surgeon's needles with varying curves, and a needle-holder (Fig. 19). All

FIG. 19.



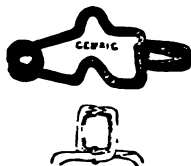
NEEDLE-HOLDER.

these instruments are, however, not absolutely essential. At a pinch, a pair of flat-nosed jeweler's pliers will answer all the purposes of a shot-compressor or of a needle-holder. An ordinary flexible catheter, if not pushed in so far as to hit the fundus of the bladder, makes a very good substitute for a self-retaining one, such as the Skene-Goodman, which is the best. It can be kept in place by being tied to the pubic hair.

Deeply etherized, our patient will now be brought in the lithotomy position to the end of this table, which fronts a good light. Her knees are supported by these two gentlemen, who also place the fingers of the free hand on either side of the

vulva, and stretch it open. A third assistant attends to the etherization, while a fourth looks after the sponges and instruments. Of course, one can operate with but three, or even with two assistants, as has been my experience in the country; but it is far more satisfactory to have the aid of four. The first thing now to be done is to clip off the hairs around the rent, the next to pare its cicatrized edges. But if I should first denude the lateral surfaces, the blood would trickle down over the rectal portion and obscure it. I therefore introduce two fingers in the bowel, so as to put the over-lying and rugous mucous membrane on the stretch, and begin the operation by trimming off the rectal edges of the rent, and by snipping off with the curved scissors a mere film of its mucous surface. This dissection is continued until the raw surface extends for at least an inch and a half up the posterior wall of the vagina. Partly by snipping

FIG. 20.



SERRES-FINES.

with the scissors and partly by paring with the knife, I now denude the right side of the rent. By encroaching inwardly on the mucous surface of the vagina, and outwardly on the cutaneous surface of the nates, there is gained on the labium a raw surface a little longer and broader than the glazed cicatrix of the original perineum,—say about an inch in breadth,—and extending upwards to a point about half an inch below the meatus urethræ. The oozing of venous blood, you see, is quite free; and this is usually the case in all operations of this kind, because the parts are vascular, and the veins valveless. Close to the lower edge of the raw surface two small arteries are springing, but I shall not tie them, lest the ligatures should act as foreign bodies, and prevent union. By nipping each one with a *serre-fine* (Fig. 20), I stay the bleeding. In all operations in which

you wish to avoid the use of ligatures, you will find these little spring-clips of great service. I shall leave them on until the wound is ready to be closed.

One side of the rent being now made raw, its exact counterpart on the other side remains to be denuded. To gain accuracy in this, my assistants will for a moment remove their hands from the vulva, while I, by pressing for an instant the nates firmly together, get on the left side an exact blood-print of the raw surface of the right side. This manoeuvre may not succeed if the *serres-fines* lie in the track of the wound, and you will then be guided by the eye alone. In denuding the left side I find it needful to use but one *serre-fine*. The cutting part of the operation is now finished, and results in a large raw surface, wider on the posterior wall of the vagina than on the labia. This form of raw surface gives greater strength to the parts, and imitates nature; for the natural perineum is wedge-shaped,—thickest at the cutaneous surface where the vulva and anus recede from each other, and thinnest where the vagina and rectum approach each other to form the recto-vaginal septum. When the recto-vaginal rent is a bad one, the denudation of the septum should be extended a little higher up the vagina than is represented in this diagram (Fig. 21). When, also, the rectum is much relaxed, and its mucous lining prolapses, it will be well to prolong the vivification of the cutaneous surfaces on each side downward to a level with the lower margin of the anal opening.

See what a symmetrical raw surface we have; it looks very like a red butterfly with its tail cut off. But, before folding its wings, and closing the wound, I hunt for some little islets of mucous membrane which may have escaped the scissors. It is not always easy to distinguish them from the raw surface; so, to be on the safe side, I snip off every suspicious-looking ridge. The sutures must now be passed, and since success, in either the primary or the secondary operation, depends mainly on the manner in which this is done, I bespeak your closest attention. A sharply-curved needle held in the jaws of a needle-holder, and armed with silver wire, is entered in the left buttock, on a level with the *lower* margin of the anus, and about half an inch

away from it. By my finger in the rectum, I pilot this needle through the recto-vaginal septum, so that by one sweep it completely girds the rectal rent, and emerges at a corresponding point of the skin on the right buttock. The free ends of this suture are alone visible; its loop lies wholly embedded in the septum. This suture was devised by Dr. Emmet, and a very important one it is whenever the sphincter ani is torn through, or a limited portion of the recto-vaginal septum is

FIG. 21.



THIS DIAGRAM REPRESENTS THE PRIMARY AND THE SECONDARY OPERATION, WHEN THE RENT INVOLVES THE RECTO-VAGINAL SEPTUM.

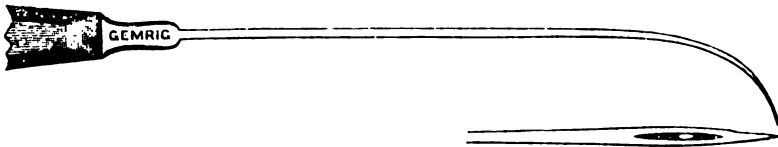
involved. It purses up the margins of the slit in the bowel, and brings together the ends of the broken muscle. When, however, the slit in the septum is over an inch in length, its closure cannot be safely entrusted to this single stitch.

Not long ago, I received a letter from a physician in the West, who sought my advice. In a very difficult forceps case, he had had the misfortune to see his patient's perineum give way, and her recto-vaginal septum torn up for two and a half

inches—very nearly up to the cervix uteri. I wrote back to him to sew up, first, this slit in the septum, with a sufficient number of interrupted gut-sutures, knotting each one in the rectum, or in the vagina, and then to close the perineum by the operation that I am now showing you. These gut sutures, by the way, need no further attention, for they disappear by absorption.

The perineum proper I shall now close by four or five other metallic sutures, which will be carried by this long-handled perineum needle (Fig. 22). The first one of these sutures is so passed that its ends emerge at cutaneous points on a level with those of the preceding suture, but half an inch outside of them, while the very small visible portion of its loop lies on the mucous membrane of the posterior vaginal wall, just above the uterine edge of the raw surface. The cutaneous points of the remain-

FIG. 22.



PERINEUM NEEDLE.

ing sutures will lie about an inch from the margin of the rent, and each suture will also be made to pass through the vaginal mucous membrane, very close to the edge of the raw surface.

Note how I pass these sutures. In order to include as much tissue as possible, the point of the perineum-needle is first plunged in directly backward. It is then turned towards the vagina, and made merely to protrude as far as its eye on the mucous membrane near the middle of the posterior vaginal wall, just above the uterine edge of the raw surface. The needle being now threaded with a piece of silver wire about a foot in length, and withdrawn, of course brings back with it the wire. It is then unthreaded, and entered at a corresponding point on the cutaneous surface of the other side, and the eye made to protrude on the mucous membrane at a point quite close to its fellow. The vaginal end of the wire is now passed

through the eye of the needle, and, as I withdraw the latter, is left in its track. As fast as each suture is placed, its ends are loosely twisted together, so as not to become entangled with its fellows.

Although this long-handled perineum needle is the handiest instrument for the introduction of these deep sutures, it is by no means indispensable. An ordinary surgeon's needle two inches and three-quarters long, and slightly curved, will answer the purpose well, if held in the bite of a needle-holder.

I now remove the *serres-fines*, and, as you see, the arteries do not bleed, but the general oozing is free. This is the usual case, but fortunately the pressure made by the adjustment of the sutures will always stop it. And it is for the purpose of controlling every bleeding vessel, that I make the perineal sutures include a portion of the sound vaginal mucous membrane. You may, if you choose, secure the wires by merely twisting them; but from habit I prefer to clamp each one by a perforated shot, and to cut off the wires very close to it. As perfect coaptation has been gained by these deep sutures, no superficial ones will be needed.

The operation is now ended; but, before removing our patient to her bed, let me empty her bladder. While withdrawing the catheter, I keep my finger closely applied to its mouth, so that the few drops of urine retained within it shall not escape and trickle over the wound. I also fold up a soft napkin, put it between her knees, and bind them loosely together.

Upon the after-treatment also will the success of this operation greatly depend. In order that no drops of urine may come in contact with the wound, and by irritation prevent union, I shall have her water drawn off until the stitches are removed. Twice a day is usually often enough; but on several occasions I have met with an irritable bladder which urgently called for far more frequent evacuations. Should such a complication present itself, or should the nurse be unable to pass the instrument, or should your patient live at a distance, the Skene-Goodman self-retaining catheter (Fig. 6) may be worn.

In order not to injure the bladder, it is bulbous and short,

being made just to pass the neck and not to touch the fundus. By a piece of rubber tubing drawn over its mouth, the urine can be conducted into a vessel on the floor, and the bed kept dry and sweet. For the introduction of the catheter, the best posture of the woman is the one on the back, with the legs and thighs well raised up over the abdomen. The meatus can then be reached without unbinding the knees. The self-retaining catheter with its rubber tube should be daily removed, taken apart, and carefully cleansed. Otherwise urinary deposits will clog it up, or roughen its exterior surface, and may even produce cystitis. For instance, last year I was called into the country to operate on a perineal rent, which extended nearly one inch up the recto-vaginal septum, and was as usual caused by the use of the forceps. After the operation a self-retaining catheter was introduced, which, through some misunderstanding on the part of the attending physician, was not removed. At my next visit, a week later, I found to my dismay, the lady in great pain, the catheter and tubing wholly clogged up, and the contents of an over-distended bladder dribbling away over the perineum. On cutting the sutures, to my surprise and great delight I found that, in spite of these drawbacks, perfect union had taken place. But for two months thereafter the lady was annoyed by so distressing an attack of cystitis that she described herself as having fallen from the frying-pan into the fire. She ultimately got perfectly well; but it taught me a lesson which I wish to impart to you.

Our patient's bowels must also be kept locked up. Opium enough to ease the painful tension of the sutures—say one grain every four or every six hours—will probably be ample enough. No local dressing, besides cleanliness, will be needed; but after the first forty-eight hours the vagina should be washed out twice daily, with a weak solution of carbolic acid, or of the potassic permanganate. There is one distressing complication of which you need to be forewarned—a very painful collection of wind in the bowels, which few escape. How and why this happens, I cannot say; but the only sure remedy is the introduction into the rectum of a flexible male catheter. And that re-

minds me of another point: Charge your patient not to stand on ceremony whenever she feels the inclination to break wind. Efforts to withhold it may cause a damaging contraction of the sphincter muscle.

Occasionally, when the wind escapes involuntarily, and your patient is fat, or lying on her back, she will think that she breaks it from the vagina, and will insist upon it that the operation is a failure. This happened not long ago to one of my private patients. It gave her and me much needless anxiety, for when the sutures were cut I found that perfect union had taken place. Here are the shotted sutures which were used in her case. The one beaded by two shot lay next but one to the anus; it is the longest one, and measures just 3.75 inches. I exhibit it especially to show you how long it is, and how much flesh it must have enclosed in its loop.

Our patient's diet will be restricted to milk, toast, eggs and broths. On the seventh or the eighth day I shall cut and remove every suture but the one first put in, viz., the rectal one. On the morning of the ninth day, four ounces of warm olive oil will be slowly injected into her rectum, followed two hours later by soap-water enemata.

She will also lie on her back, with a shovel bed-pan under her person, and be instructed to restrain all tenesmic efforts. Should hardened fæces over-distend her rectum, the nurse will break them up either by her finger, a hairpin, or the handle of a spoon.

When her bowels have been thoroughly moved, but not till then, the rectal stitch will be taken out. After this, if the union be good, her bowels will be kept open daily, by an evening dose of the compound licorice powder. If otherwise, they will be again bound for five days more. For two weeks, at least, she will keep her bed and have her knees bound together. After that she may be allowed to sit up, but not, for a week more, to walk about. Such precautions are needful, in order that the newly-united tissue may not become absorbed, or become relaxed by over-stretching.

Should, unfortunately, a fistulous opening in the recto-vaginal

septum remain, it may, if small, be treated by an application of the *acetum cantharidis* or of fuming nitric acid, followed by coaptation with *serres-fines* or with sutures, and, these failing, by burning it with the actual cautery. If the fistula be of any size, no treatment will probably be successful other than that of cutting through the united portion and of doing the original operation over again. Although the operation may be a successful one in respect to the union of the raw surfaces, yet usually the control over the sphincter does not at once return; sometimes, though rarely, it is not wholly regained. You must, therefore, be careful how you commit yourself to the promise of a rapid or a perfect cure.

Other operations have been devised for laceration of the perineum, but the one just performed before you is simple and yet very successful. Its good results many of you have repeatedly witnessed. And after a very large experience with it, I feel myself entitled to recommend it very warmly.

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## LESSON VIII.

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### *Local and Constitutional Treatment for Chronic Metritis and Endometritis.*

#### LOCAL TREATMENT.

THE following agents are much employed at the Clinic and the Dispensary of the University as local applications, and I can recommend them. They are enumerated in the order in which they are ordinarily used. The first on the list is one suggested by Dr. J. P. THOMAS, of Pembroke, Ky.,\* and called by him Iodized Chloral-Phenol. The formula of it is as follows :

R.	Iodidi resublimati,	℥ss	
	Acid. carbolic crystal.,		
	Chlorali,	āā	℥j. M.

The iodine and chloral are rubbed down into a powder in a glass or a porcelain mortar, and the carbolic acid, liquefied by heat, is then added.

Next come the undiluted commercial liquid carbolic acid (Calvert's No. 4); a solution of one drachm of the silver nitrate to the ounce of glycerine; a saturated alcoholic tincture of iodine; a saturated ethereal tincture of iodine; fuming nitric acid; and the solid stick of lunar caustic.

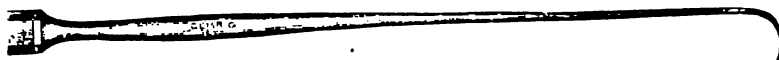
With the exception of the solid caustic, each agent should be applied by means of a film of cotton wool wound evenly around about two inches of the aluminium applicator, beginning at its tip. Absorbent cotton is the best for this purpose; but jewelers' cotton, which is chemically cleaned, and has a long and fine fibre, answers very well.

\**American Practitioner*, May, 1877, p. 287.

These applicators are usually roughened at the tip, in order to give the cotton a hold which would prevent it from slipping off and remaining behind in the uterine cavity. This roughening, however, makes the subsequent removal of the cotton too tedious, and too liable to stain the fingers. I therefore prefer to use a smooth probe, taking care, in that case, to wrap the terminal end of the cotton very tightly. But, as this needs a skill which practice alone can give, it would be well for a beginner to make use at first of the roughened wire. The ordinary uterine sound can of course be resorted to for the same purpose; but the stronger acids soon corrode it, while the bulb at its tip makes the removal of the cotton a dirty and difficult process.

The probe thus armed, after being dipped into one of the above liquids, I *always* carry, through a speculum, *up to the fundus of the womb whenever the internal os permits it to pass*. In the great majority of cases this can be done, provided the anterior lip of the cervix is first hooked down by the uterine tenaculum (Fig. 23); a procedure which steadies the womb and

FIG. 23.



straightens it out. My reasons for cauterizing the whole mucous tract of the womb are fourfold: (a) If the mucous coat is alone involved, the symptoms often fail to inform me how far up the disease has extended: (b) Owing to the absence of any sub-mucous connective tissue, the inflammation of the mucous membrane must sooner or later more or less involve the parenchymatous structure, and this must be avoided at all hazards. (c) Whenever the internal os is sufficiently patulous to admit the armed applicator, I accept this fact as an evidence that the disease is not limited to the cervix. (d) By this practice, in a measure empirical, I err on the safe side, and obtain far better results than I did when limiting my applications to the cervical canal. Nor is this bolder plan of topical medication more hazardous than the ordinary one limited to the cervical canal.

Out of a yearly average of over two thousand uterine applications of this kind at the Hospital of the University, to say nothing of my own private patients, we have yet to hear of a death from this cause. Nor have we seen any but light and manageable attacks of perimetritis, and these very seldom indeed. The cases in this clinic consist of out-patients, who, after an application, however strong, have necessarily to go home, many to adjacent towns lying within a radius of twenty miles.

From these facts and from our successes, I have come to the conclusion that he is the most successful gynecologist who is the most plucky, and that, no matter how severe or how mild the treatment of uterine disorders, the percentage of accidents will be about the same, and that a very low one. The only severe attack of perimetritis of which we have any knowledge followed the application of the solid stick of the silver nitrate merely to a patch of granular erosion on the cervix. In my private practice I have yet to see, from this cauterization of the the whole mucous lining of the womb, any worse results than an occasional attack of uterine colic, but rarely so urgent as to require morphia hypodermically. For all pelvic inflammations induced by a uterine treatment, or, indeed, for those following labor, I am in the habit of recommending from twenty to thirty grains of quinia during the twenty-four hours; morphia in quarter-grain doses repeated frequently enough to keep under the pain; and, while the pulse runs high, from sixty to eighty grains of the potassic bromide. From the umbilicus downward the abdomen is to be painted twice a day with the compound tincture of iodine, and then to be covered by a large mush poultice, over which is spread a piece of oiled-silk or a well-greased sheet of brown wrapping-paper. The diet is to consist of beef-tea and milk *ad libitum*, egg-nog, and more or less of whisky or of brandy. When the pelvic pains are very acute, the morphia should be given hypodermically until they are controlled.

With the exception of that of the fuming nitric acid, the liquid applications are to be made once a week, and to be constantly changed about from one to another. In order to insure

a thorough cauterization, it will often be advisable to make two or three applications, the one directly after the other, until the walls of the uterus are irritated into contracting down upon the probe, and gripping it; and also when the cervical canal is not very patulous, first to stretch it open by the uterine dilator. In making these applications no other care need be taken than, before removing the speculum, to swab out or syringe out the redundant portion of the fluid, which has run down over the posterior lip of the cervix. But, in order to apply the nitric acid safely, greater precautions must be taken. The cervical canal, unless very patulous indeed, must be previously dilated, either by a tent or by the dilator, preferably by the latter. If the bivalve speculum be used, very great care should be observed to avoid touching the walls of the vagina with the acid. Whatever the speculum, water enough to reach to the lower margin of the os should be thrown into it, by that very handy little in-

FIG 24.



strument, the uterine syringe (Fig. 24). Immediately after the application, several syringefuls of water should be projected upon the cervix. A tampon of cotton-wool, with a withdrawing thread attached, may then be dipped into water and left for twelve hours in contact with the cervix. After ten days or two weeks have elapsed, one of the milder caustics may be applied. In obstinate cases I have sometimes found it necessary to make a second application of this powerful acid. This, however, should not be done before a month has passed by, lest closure of the cervical canal should result. When granular erosion is associated with a gaping or an everted os, there is no better treatment than by this acid. In such a case it must be applied freely to the cervical canal, and less so to the uterine cavity. In menorrhagia springing from a congestion or from a sub-involution of the womb; in cases of wombs too tender to bear the pressure of a hard pessary; in obstinate leucorrhœa, it does much good

when boldly carried into the uterine cavity. I am very partial to this escharotic, nor have I yet found that its use is followed by symptoms more urgent than those produced by the milder caustics. In carrying this acid about, one caution must be carefully observed by the physician for his own protection. By the jolting of his carriage, or by other constant agitation, a gas is generated which, upon the quick removal of the stopper, violently forces a fine spray of the contents out of the bottle. He must therefore avert his face while he slowly removes the stopper, which, by the way, should be made of glass.

The solid stick of silver nitrate is no great favorite of mine. It gives more pain than the liquid preparation, is less manageable, and often causes a hemorrhage. Its prolonged use is so liable to be followed by a hard, gristly cervix, or by contraction, or even by closure of the cervical canal, that it is restricted pretty much to those cases in which the os is gaping or is everted, but not lacerated. By first warming the tips of the aluminium probes, and then dipping them into fused silver nitrate, they receive a coating of the caustic which can be readily passed up into the uterine cavity; not, however, without considerable uterine colic. A common test tube held over the flame of a candle is all the apparatus needful for the purpose. This is an admirable way of treating sub-involution and other affections of the body of the womb. In stubborn cases of amenorrhœa advantage may thus be taken of its tendency to excite hemorrhage. Whenever this caustic is passed up into the uterine cavity the hypodermic syringe should be within reach.

A saturated ethereal tincture of iodine, being much stronger than the corresponding alcoholic tincture, I have found very useful in very marked cases of cervical endometritis. But the fear lest the subtle vapor of the ether should escape through the oviducts into the peritoneal cavity, or should force in some of the liquid before it, has made me somewhat chary of introducing it into the uterine cavity.

Intra-uterine injections are very efficacious remedies in the treatment of diseases of the body of the womb, but, for reasons not yet well understood, they are liable to be followed by very

dangerous symptoms, such as severe uterine colic, collapse, and rapid peritonitis. Death has repeatedly resulted from them. For these reasons I long avoided their use; but of late I have in obstinate cases been resorting to them with much satisfaction. In applying them I use a very small hard-rubber syringe, holding, when full, but twelve drops, which are discharged in fine jets through a number of minute holes in the sides of the nozzle. With this I inject at one time from about six to twelve drops of any one of the applications previously mentioned. But in using the fuming nitric acid, the syringe is first charged, and the holes in the nozzle are next wrapped over with a thin film of absorbent cotton. The nozzle is now passed up to the fundus, the piston pushed home, and the cotton merely moistened by the acid.

In this manner the endometrium is thoroughly cauterized, without the dangerous presence of a corrosive fluid lying free in its cavity. As a rule, however, in order to save my syringe, I prefer to introduce the nitric acid by means of the applicator, which, to guard the cervical canal from cauterization, is passed up through a platinum tube.

All ordinary applications should be made about once a week, and the stronger ones at much longer intervals. In the meantime the woman should herself daily irrigate the womb with tannin, lead, or zinc solutions—one drachm to the quart of water. A very excellent wash is a warm tea of walnut leaves, or an infusion of flax-seed or of slippery elm-bark, to every quart of which two drachms of the potassic chlorate or of common salt may be added. A gallon of water, as hot as can be borne, thrown up twice daily on the cervix uteri, is an excellent remedy, for which, as well as for many other valuable hints, we are indebted to Dr. Emmet. For making these vaginal injections Davidson's syringe is the best; but when the quantity of fluid to be injected is large, many ladies prefer the Fountain Syringe, which works by gravity, and needs no muscular exertion. It consists simply of a rubber bag, with a long tube attached, and is used by being suspended from a nail.

A still better treatment is the introduction, at bedtime, into

the vagina, of a suppository containing a few grains of the acetate or the iodide of lead, of the zinc sulphate, or, what is better, from five to ten grains of tannic acid. For obstinate congestions, apart from local depletion, one drachm of the fluid extract of ergot, or an equivalent dose of one of its preparations, should be nightly introduced into the rectum, either by a suppository or by a starch clyster. As vaginal suppositories are expensive and quite difficult to make, certain very efficient substitutes can be extemporized. For instance, the tannin or any other dry astringent powder may be projected by the woman herself upon the cervix, through the nozzle of one of those ingenious tin bellows which are imported from France for the purpose of scattering insect powder about. Or else—after the plan of my friend, Dr. E. L. Duer—a teaspoonful of glycerin, containing five grains or more of tannin, of lead acetate, or of zinc sulphate, may be poured into a hollow pressed by the thumb into the centre of a thin sheet of cotton-wool, not quite so broad as one's palm. The edges being now gathered up and securely tied, there will be formed a small and dry tampon, which the woman, after getting into bed, can herself push up against the cervix. For convenience of removal, the ends of the string should be left long enough to hang outside of the vulva. Medication by vaginal suppositories is to be preferred to that by vaginal injections, because in the former the remedy lies longer in contact with the cervix, and because it is probable that more or less of it is carried up directly into the uterine cavity, either by capillary attraction or by that reversed peristaltic or suction action of the uterine fibres so lately described. In future, when the vaginal suppository is mentioned, the term will mean, indifferently, some one of the above methods.

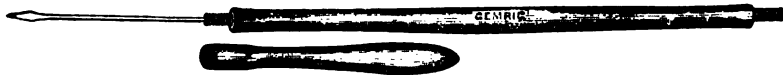
I am more than ever impressed with the fact that in general the caustic applications are made too continuously for nature to have fair play, and that irritation and congestion are actually kept up by too short intervals of rest. It is therefore my habit, after making from four to six applications, each a week apart, to send my patient away just before a catamenial period, with directions not to return until two such have passed. Not only

will much be gained by this intermission in the treatment, but an opportunity for impregnation is thus given.

With regard to the conjugal relations during local treatment, while, as a rule, abstinence is recommended, I yet sanction the advice of the apostle, that "the husband render unto the wife due benevolence; and likewise also the wife unto the husband." While coition should always be completely performed, on the one hand the husband must not be too exacting; on the other, the wife should not restrain her own inclinations; for intercourse, then, appeases the congestive orgasm of the reproductive apparatus.

*Local Depletion.*—Since congestion is the essential basis, the *punctum saliens* of uterine disorders, it stands to reason that local blood-letting should be the remedy. Whenever, therefore, the cervix has lost its natural pink or gum-like color, and becomes crimson, it needs depletion. For this purpose nothing answers better in the end than two or three leeches pushed up to the cervix through a glass speculum. In leeching, the os uteri must first be well plugged by a clean morsel of cotton, with a withdrawing thread attached; otherwise a leech may creep into the uterine cavity and fasten itself there, giving intolerable anguish. The week succeeding the catamenial flux is always the best time for their application. But leeches are often capricious, always expensive, sometimes unattainable, and their application is a tedious and an unpleasant job. A substitute is therefore necessary. In lieu thereof, once a week or a fortnight, the cervix may be punctured at three or more points by

FIG. 25.



Buttle's spear-pointed scarificator (Fig. 25.), by a straight-pointed bistoury, or by a tenotomy knife. Not more than from two to four tablespoonfuls need be taken at one time. The difficulty usually consists in drawing blood enough, but occasionally too much will flow. I have seen it spout out as if a large vein had

been struck. It is well, therefore, to watch for a moment the first puncture before making others. In a large, flabby and angry-looking cervix, in cases of retroflexion accompanied by marked congestion, blood enough will often escape from but one superficial puncture. In firmer and paler cervixes the punctures must be made deeper and more numerous. The point of the instrument should penetrate to a depth of from one-eighth to one-quarter of an inch, and, in order to enlarge the opening, should be withdrawn by a slight turn of the wrist. To collect the blood as it flows out of the speculum, without soiling the clothes of the patient, I have found nothing so convenient as an ordinary kitchen gravy-ladle of tinned iron, which has its well-earned place in my leather bag.

After the bleeding has ceased, the uterine application is to be made. If it persists, a stream of cold water may be thrown upon the cervix, or each bleeding point can be touched with the solid stick of the silver nitrate. Often the mere introduction of the ordinary application into the uterine neck and cavity will so condense the tissues as to stop the bleeding. On very rare occasions I have been obliged to tampon the vagina loosely with cotton-wool dipped in a solution of the iron subsulphate. Local depletion is a very important adjunct to the treatment of uterine diseases. It is, indeed, often the pith of the treatment. Its neglect is a common cause of failure. The condition of the cervix is not, however, always an infallible criterion as to the necessity for drawing blood, for the congestion of the womb may be limited to its body. Depletion, may, therefore, in general be resorted to whenever the womb is hypertrophied; whenever its body is tender to the touch, or too sensitive to bear the pressure of a pessary; whenever pelvic pains resist the ordinary treatment, and, finally, in most cases of flexion or of dysmenorrhœa. No inflexible rule can be laid down with regard to the number of times this operation should be performed. My own custom is to draw blood at intervals of a week or two until the general or the local symptoms are decidedly improved.

## CONSTITUTIONAL TREATMENT.

One cardinal rule in the treatment of all uterine disorders is the internal administration of iron, and of other tonics, unless contra-indicated. To these may be added, whenever the womb as a whole is congested or hypertrophied, ergot, quinia, arsenic, or potassic bromide, either singly, or more or less in combination. Whenever one of my patients can or will take cod-liver oil in conjunction with the syrup of the iron iodide, I feel that half the battle is won. The bowels should be kept soluble. An excellent pill for this purpose, to be taken at bedtime, is :

℞. Ext. colocynth. comp.,	gr.ij	
Ext. belladonnæ,	gr. ⅓	
Ext. gentianæ,	gr.j	
Ol. carui,	gtt.ss.	M.
Et ft. pil., No. j.		

The pulvus glycyrrhizæ comp. of the Prussian pharmacopœia is another good laxative. I have kept patients on it for months, and always with benefit. The formula for it is as follows :

℞. Pulv. glycyrrh. rad.,		
Pulv. sennæ,	℥℥	℥ss
Sulphuris sublim.,		
Pulv. fœniculi,	℥℥	℥ij
Sacchar. purif.,		℥iss.
Sig.—One teaspoonful in half a cup of water at bed-time.		

The Lady Webster pill also is peculiarly suited to many of these cases of obstinate costiveness. Two or three pills may be given at bedtime.

The following tonic pills are much prescribed at the clinic :—

℞. Acid. arseniosi,		
Strychniæ sulph.,	℥℥	gr. ⅓
Ext. belladonnæ,		gr. ⅓
Cinchoniæ sulph.,		gr.iss
Pil. ferri carb.,		gr.ijss.
Et ft. pil., No. j.		M.
℞. Acid. arseniosi,		gr. ⅓
Cinchoniæ sulph.,		gr.iss
Ferri et potass. tart.,		gr.ij.
Et. ft. pil., No. j.		M.

The sulphate of cinchonia in these pills may be advantageously substituted by a proportionate dose of sulphate of quinia, the former being used simply on account of its cheapness. One pill may be given after each meal.

Basham's iron mixture with the addition of fractional doses of strychnia, will be found very admirable in its effects. There are so many indifferent recipes for making this celebrated mixture, that I shall here give the one which seems to me to be the best :—

℞. Tinct. ferri chloridi,	fl.℥ij	
Acid. acetic. diluti,	fl.℥ss	
Liquor. ammoniæ acetat.,	fl.℥ijss	
Curaçœ,		
Syrupi simplicis,	āā fl.℥j	
Aquam,	ad fl.℥viiij.	M.

Sig.—One tablespoonful after each meal.

The following formula makes another very elegant and generally useful preparation of iron :—

℞. Tinct. ferri chloridi,	fl.℥ij	
Acid. phosphorici diluti,	fl.℥ij	
Spts. limonis,	fl.℥j	
Syrupi simplicis,	fl.℥ijss	
Aquam,	ad fl.℥vj.	M.

Sig.—One tablespoonful after each meal.

The dilute phosphoric acid is added, both because it is a valuable nerve tonic, and because it has the property of disguising the styptic taste of the iron; so much so that children readily take this mixture.

There are two other tonic preparations which we prescribe very frequently in this building, and with capital results. One of them is Blaud's pill, which Niemeyer extols so very highly :

℞. Pulv. ferri sulphat. exsicc.,		
Potass. carb. puræ,	āā	℥ij
Syrupi,		q. s.

Ut fiat massa dividenda in pilulas, No. xlviiij.

During the first three days, one pill is to be taken after each meal. On the fourth day, four pills are taken during the day. On the fifth day, five pills; on the sixth day, six—that is to say,

two pills after each meal. For three days more, six pills are taken daily; then the dose is to be increased by one pill daily, until three pills are taken after each meal. On this final dose the patient is kept for three or four weeks—as the case may be. In stubborn cases I have occasionally run up the dose to the number of five pills thrice daily, and have seen no other bad effects from it than a feeling of fullness in the head. This immunity is probably owing to the conversion of the iron sulphate into a carbonate.

The other preparation is a valuable alterative tonic, for the formula of which I am indebted to my friend, Dr. A. H. Smith:

R.	Hydrarg. chloridi corrosivi,	gr. j-ij	
	Liq. arsenici chloridi,	f. ʒj	
	Tinct. ferri chloridi,		
	Acid. hydrochlorici dil.,	ss	f. ʒiv
	Syrupi,		f. ʒiij
	Aquam,	ad f. ʒvi	M.

Sig.—One dessertspoonful in a wineglassful of water after each meal.

Anæmic and chlorotic patients will fatten and thrive wonderfully on this mixture. I call it the Mixture of Four Chlorides. It should not be given for a longer period than two weeks at a time.

When patients complain of nervousness or of sleeplessness, the potassic bromide must be given, either alone or in combination with other remedies. A cheap mixture, much thought of by our patients at the University clinic, is the following:

R.	Pulv. ferri sulphat. exsicc.,	gr. xxx.
	Potassii bromidi,	
	Rad. calumbæ contus.,	ss ʒj.
	Aquæ bullientis,	Œj.

Steep for twenty-four hours and then strain.

Sig.—One tablespoonful in a wineglassful of water, just before or just after each meal.

I cannot say much for the palatableness of this infusion, nor more for its pharmaceutical elegance; but it does good, and we therefore give it largely to our poor patients. The iron and the potash in it may be increased or lessened, or the former may

be left out, as the case may be. The zinc valerianate given thrice daily in doses of from two to four grains, is one of our best nervines. For a better class of patients the following antispasmodic mixture can be prescribed with very general satisfaction :

℞. Elixir. humuli, f. ʒj.  
 Elixir ammoniæ valerianat.,  
 Syrupi lactucarii, ʒss. M.  
 Sig.—One dessertspoonful at bedtime, or during the day when  
 needful.

When ergot is indicated, it may be given continuously and in full doses, either by the mouth or by the rectum. The suppository is made by inspissating the fluid extract by a moderate heat, and incorporating it with cocoa butter. Of these two modes of administration I much prefer the latter, as it does not disturb the stomach. In country practice the ergot may be given in a starch clyster.

In addition to these remedies, an effort should be made to distract patients from self, and to make them forget that they are invalids. Their tendency is to give too much heed to every little ailment. They should be urged to give up the recumbent posture, to take regular exercise, and to expose themselves, without veils and parasols, to the direct rays of the morning sun. Woman, as well as plants, needs sunshine. Tea and coffee should be given up, and milk or claret substituted. A wholesome diet of easily digested meats and vegetables should be ordered, pastry interdicted, and the old adage inculcated of "early to bed and early to rise." A moderately cool bath may be taken daily, provided no great fatigue is induced by it, and a healthy glow follows its use. The brisk rubbing down after a cool bath, by putting many muscles into play, is one means of furtively giving exercise to those patients who are indisposed to take it as such. The corset should be discarded ; the clothes must fit loosely and be supported from the shoulders. However unreasonable this advice may have seemed to the woman while her health was good, she will now usually adopt it, but not without many a pang and many an inward struggle. No vanquished knight ever yielded up his armor with worse grace.

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 for any purpose whatever.*

For obvious reasons, when young girls or unmarried women exhibit symptoms of uterine trouble, an examination by the finger or by the speculum, or a treatment requiring the use of the latter, should never be insisted upon, until other measures have first been faithfully tried. These measures will be limited to the hygienic and constitutional treatment just detailed, and to such local remedies as the patient herself can use, viz.: the hot douche, the hip bath, vaginal suppositories, vaginal injections, etc.

## LESSON IX.

---

### *Retroversions and Retroflexions of the Womb.*

IT is so rare to meet with a pure case of retroversion—that is, one without some degree of flexion—and so rare to meet a case of retroflexion without being complicated with more or less of version, that both of these displacements can be treated in pretty much the same manner. By the obstruction at the point of flexion, or by the fundus being often lower than the cervix, in these displacements, the natural secretions and excretions, such as mucus and the menstrual fluids, are retained longer than they should be. This irritates the womb, distends its cavity, and augments the discharges. Hence we have leucorrhœa and menorrhagia.

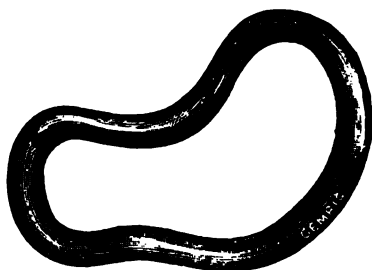
Then again, the circulation being impeded by gravity and by angulation, congestion takes place, the local nutrition becomes undue, and diffuse growth or proliferation of the connective tissue takes place. Hence the uterine walls become thickened and dense, and the nerves compressed. In this manner the pain, the tenderness and the sense of “bearing down,” are explainable.

Now it stands to reason that whatever shall reduce these dislocations and keep them reduced, will also tend to cure the effects of these dislocations. Hence, for remedying these two kinds of lesions, pessaries are indispensable, and of all of them Hodge's closed-lever pessary is one of the best (Fig. 26).

When fitting properly, it acts physiologically by propping up the dislocated fundus, and by restoring the posterior wall of the vagina to its natural length. Again, since its anterior bar plants itself firmly against the posterior surface of the pubic symphy-

sis, or against the angle formed by the converging rami of the pubic bones, it offers a very efficient and powerful support. It will not, however, always answer. Whenever the relaxation of the parts is great, or the vaginal portion of the cervix has disappeared, as it sometimes will through senile atrophy, or through the stripping off of the vagina by the upward traction of the womb in repeated pregnancies, the physician may be driven to the globe- or to the ring-pessary. But this alternative should be deemed a misfortune, for all pessaries which distend the vagina at the expense of its length are mere makeshifts. Such instruments cannot effect a cure, since by overstretching the

FIG 26.



HODGE'S PESSARY.

vagina laterally, and by thus impairing its tonicity, they weaken this great supporting column of the uterus, and, in prolapse, tend to confirm the usual cause of the displacement. Further, the ring-pessary is not trustworthy, and needs watching; for it is liable, by its elastic pressure, to excite ulceration and to become buried up by over-arching granulations. In this manner it sometimes eats its way into the bladder or the rectum. There are few physicians with a large uterine practice who have not had to dissect out a neglected ring vitally imbedded in the wall of the vagina.

Another very great objection lies in the fact that, when made of poor and brittle rubber, as these pessaries usually are, they crack at one place or more during the process of their introduction; and then, sooner or later, by the rusting of the steel wire at these points, they spring open. This accident I have so

repeatedly seen as to make me timid about using them. When the base and neck of the bladder are very sensitive, or when, as in some old women, the vagina has lost its elasticity and is shortened, Cutter's pessary answers a very admirable purpose. (Fig. 42.) It is practically a Hodge pessary, having an external fulcrum attached by an elastic band to an abdominal belt.

My friend, Dr. Albert H. Smith, has made a modification of Hodge's pessary to which I am very partial, the more so because it meets several very important indications. The healthy vagina is a cone-shaped tube, widening out above and narrowing down as it approaches the vulva. Its uterine portion is thin, membranous and almost devoid of muscular fibre; while its lower portion is rich in elastic and muscular tissues, and powerfully acted upon by the strong muscles of the perineum. Now, Hodge's pessary being of a uniform width throughout, in fact a parallelogram in shape, will often unduly stretch laterally the vulval, viz., the narrowest, portion of the vagina, while it too loosely fits the uterine portion. The pressure being unequally distributed, is liable not only to irritate the points of firmer contact, but also to cause the pessary to tilt over on its side, or to become otherwise displaced. Again, its front bar, by pressing upon the pubic bones, may irritate the overlying soft parts, and may also so compress the urethra as to make micturition painful. To avoid these defects, and also to distribute the pressure in front over the surface of the anterior vaginal wall, which responds to the movements of the diaphragm, Dr. Smith slightly narrows this pessary anteriorly, and then bends the tip thus rounded sharply downwards, at almost a right angle.

The Hodge pessary is readily moulded into this shape in the following manner:—The *anterior part only* is either dipped into boiling wax or lard (the temperature of boiling water is not high enough), or else is buried in sand heated to about 350° Fahr. It may also be held over the flame of a spirit-lamp. When sufficiently plastic, the uterine viz., the unheated, portion of the pessary, with the concavity of its curve looking downward, is grasped by the thumb and fingers, and so compressed that the anterior portion of each lateral bar slightly

converges towards its fellow. While still undergoing the pressure, the pessary is quickly carried to a deep wash-basin, one-fourth full of cold water. The tip is now bent almost at right angles by pressing it for a moment strongly against the dry surface of the basin, over which it is then made quickly and firmly to glide down into the water below. The contact with the water at once "sets" the pessary in the desired shape. The sand bath is certainly the handiest and cleanest way of moulding these pessaries, but, unless carefully watched, it is liable to overheat and spoil some of them.

This form of pessary I can confidently recommend as one that will best fit the large majority of cases ordinarily met with, of retroversion, retroflexion, or of prolapse. By comparing a Hodge pessary with Fig. 27, the alterations in shape will be at once seen. A side view is given at A, and a front view at C.

Whenever the body of the womb is too tender to bear the pressure of this hard rubber pessary, the provisional use of in-

FIG. 27.



SMITH'S PESSARY.

FIG. 28.



INFLATED RUBBER-RING.

flated rubber-rings will be called for (Fig 28). These air-cushions must be used in conjunction with local depletion, with intra-uterine applications of carbolic acid as a local anæsthetic, and with the hot douche, the last provided the woman can herself remove and re-introduce this pessary. The Hodge pessary, with a bulbous expansion at the upper end, such as Thomas's, can often be borne when other hard pessaries give pain (Fig. 29). Some stubborn cases I have overcome by a free ap-

plication of fuming nitric acid to the uterine cavity. Whenever these inflated rings cannot be procured, wads of oakum or

FIG. 29.

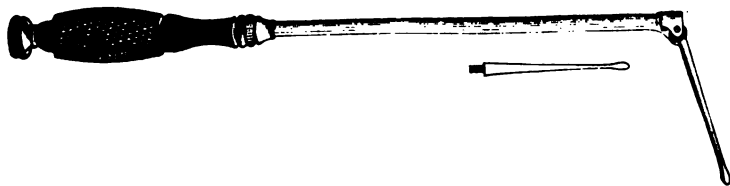


THOMAS'S BULB PESSARY.

sponges dipped into a weak solution of carbolic acid will make very good substitutes. The distressing pelvic pains and aches which torment these patients will be greatly alleviated by passing into the vagina, at bed-time, a suppository containing one grain of morphia and two of the extract of belladonna. A rectal suppository containing one-third of a grain of the extract of belladonna, will sometimes do much good.

In most cases of retroversion it will prove advantageous to stretch out the contracted utero-sacral ligaments by Gardner's repositor (Fig. 30). This instrument is used by introducing the

FIG. 30.

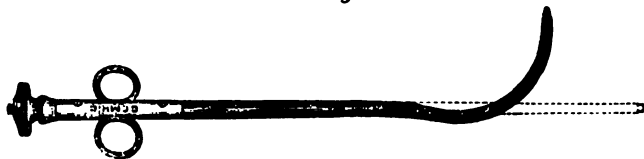


GARDNER'S REPOSITOR.

stem into the uterus, and then giving varying angles to it by a screw in the handle. In this manner a retroverted womb can be temporarily forced into a state of anteversion. The womb when retroflexed should be straightened out, by giving

varying curves to the uterine sound in successive introductions. To avoid injury to the mucous lining from the scraping it gets from the sound, a piece of a flexible bougie, or of a flexible catheter, may be first slipped up to the fundus, and the sound introduced into it. The retroflexed womb can also be carried wholly into a temporary condition of ante flexion by the ordinary sound with a slight curve, which can then be made to revolve within the uterine cavity, and thus to reverse the flexion. This can also be more effectually done by Elliot's repositor, the curve of which is changed at pleasure by a screw in the handle (Fig.

FIG. 31.

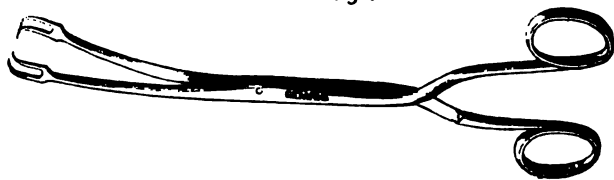


ELLIOT'S REPOSITOR.

31). One can accomplish the same thing by first seizing and drawing down the cervix with the single or the double tenaculum, or with a small volsella forceps, and then pushing up the fundus by a finger passed up either into the vagina or the rectum. By this manœuvre a retroverted womb can also be readily redressed; but it is then best not to push the fundus directly upward over the jutting promontory of the sacrum, but somewhat laterally, so as to make it skirt this bony shelf. As will be seen, under its appropriate heading, the uterine dilator bids fair to do much good in obstinate cases of retroflexion.

One word here on the subject of the volsella (Fig. 32). Since

FIG. 32.



VOLSELLA FORCEPS.

it maintains its hold better than the single tenaculum, and is

more out of the way than the double tenaculum, it is to me one of the most precious instruments in my bag, amounting in value almost to a third hand. Apart from using it, as above described, in redressing or straightening out any kind of version or of flexion of the womb, it subserves other useful purposes. By hooking down the cervix and holding it steady, it materially aids in the introduction of sponge-tents. For the same reason, upon the removal of the tent, it renders the exploration of the uterine cavity with the finger very much easier than by the usual plan of forcing the womb down upon the finger by suprapubic pressure, a procedure always painful, and in a fat woman, very difficult of execution. By thus lowering and fixing the womb, it facilitates very materially the removal of intra-uterine polypi, or the scraping away of benign or of malignant growths from the cervix or the fundus. In such cases, I usually apply it without the aid of the speculum, and generally seize hold of the anterior lip. In redressing versions, a mechanical advantage is gained by seizing hold of that lip whose name does not correspond with that of the version. Thus, in retroversions the anterior lip is seized; in anteversions, the posterior lip. But in flexions, as one object of the traction is to stretch out the flexed side the most, that lip should be seized whose name corresponds with that of the flexion. This advice is theoretically correct, but it may not always be found practicable.

## LESSON X.

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### *Anteversions and Anteflexions of the Womb.*

SINCE these conditions are more or less the natural ones of the nulliparous or of the healthy uterus, and especially so when the bladder is empty, it by no means follows that every case of hysteria or of pelvic irritation exhibiting these forms of displacement requires a uterine treatment. I am led to make this remark, because a congestive irritation, or, perhaps, an inflammation of one ovary, or of both, is often at the bottom of symptoms usually referred to the above displacements; and because many a hysterical woman has, consequently, been unfortunately subjected to a purely uterine treatment, when it should have been a moral one, or a constitutional one, or, at the most, an ovarian one. The paramount influence of the unseen ovaries over body and mind is too much overlooked. With much truth it has been said, that anatomically we may speak of the "womb and its appendages," but that physiologically the womb is really an appendage of the ovaries. True, the contiguity of these structures, and their intimate nervous, vascular and functional kinship, make them so mutually dependent, that a disease in the one is very likely to beget some derangement in the other. But, without committing myself to the doctrine that hysteria in woman is, primarily or secondarily, always an ovarian expression, I am sure that it is often present when no lesions whatever can be discovered in the uterus proper. Hysteria is pre-eminently a disease of the unmarried, of the newly-married, and of the sterile. But, since in them the womb is naturally anteflexed and anteverted, so this physiological condition is liable to be mistaken for a pathological one, and to be treated, that is to say maltreated, accordingly. The diagnosis is, therefore, not always clear; but, when dysmenorrhœa is present, when the womb is

markedly tender or congested, or it exhibits other unmistakable objective evidences of disease; when, in addition, the marriage is an unfruitful one, then may the hysterical and other subjective symptoms be intelligently referred to the uterus proper as the primal cause.

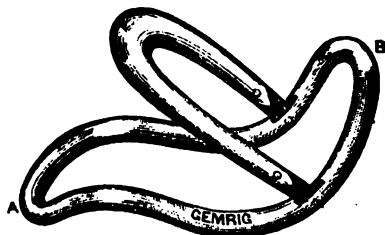
Since typical examples of pure anteflexion alone, or of pure anteversion alone, are rarely to be met with, the one lesion usually blending with the other, the same kind of treatment for each will often answer. By the same means as were described for cases of retroversion and of retroflexion, but of course in an opposite direction, the utero-vesical folds of the peritoneum must be forcibly stretched out, and the womb, when bent, straightened out. This should rarely be done oftener than once a week; in the meantime anodyne vaginal suppositories at bedtime will usually be very grateful. At each visit local depletion and topical remedies will also be generally called for. Since, as has been remarked, these forms of displacement more commonly occur in unmarried or in sterile women, the cervical canal is often tortuous and contracted. Tents of sponge, or of lamina-ria, or of slippery-elm bark, will, therefore, be needed as auxiliaries to the treatment. This method of cure, however, being tedious and unsatisfactory, I have lately, with great success, been treating these cases by forcible dilatation; an operation which will shortly be described.

The treatment of this class of displacements by pessaries is by no means so satisfactory as in the former class. No two cases can in this respect be treated exactly alike. The difficulty lies in the construction of an instrument that shall lift up the body of the womb by pressure made in front of the cervix, without irritating the bladder through which the support must be communicated. By pushing the cervix forward, the Hodge pessary will sometimes, in pure cases of anteversion, tilt the fundus backward off from the bladder. Sometimes in anteflexions, by sharing with the bladder the weight of a congested womb, it will alleviate the vesical distress. Again, this instrument, in conjunction with an abdominal brace, will at times give much comfort. Occasionally, if introduced wrong end foremost, the

small curve behind the cervix and the large one in front, the womb will be raised up and much relief obtained.

In a few selected cases Thomas's anteversion pessary will act admirably; but in the majority it cannot be borne. It has, however, served me some very good turns, and I, therefore, give a cut of it. (Fig. 33.) It is practically a Smith pessary armed pos-

FIG. 33.



THOMAS'S ANTEVERSION PESSARY.

teriorly with a movable bow, which is added to make pressure upon the fundus uteri. In its introduction and removal some degree of knack is needed. After closing it, it is introduced and lodged behind the cervix, just like a Hodge pessary. Then, by insinuating the index finger between the bow and the pessary proper, the former is prized up and swung forward. Since, in the removal, the bow flaps back on the posterior bar (B) and tightly pinches the cervix, the latter must be pushed upward out of this grip by means of the index finger. This sleight of hand should be taught to the patient, so that she herself may be able to remove the pessary, or to explain the method of its removal to a physician ignorant of its peculiar construction. Otherwise, he will tug away in vain at its anterior bar (A), and be at his wit's end to know how to get it out of the vagina.

The ordinary globe and ring pessaries will occasionally answer when other measures fail. Graily Hewitt's modification of the Hodge pessary has, in my hands, occasionally given great comfort after the failure of every other kind of pessary. (Fig. 34.) It is, however, like its fellows, adapted only to single and isolated cases, such as cannot be determined beforehand.

Of all extra-uterine pessaries, excepting the Hodge, I have, in the long run, found the inflated ring pessary to be the best. This soft-rubber air-cushion can generally be well borne, while,

FIG. 34.



HEWITT'S ANTEVERSION PESSARY.

by the admission of the cervix into the opening in its centre, the fundus is tilted off from the bladder. This pessary has, however, three grave faults: it over-distends the vagina; it soon becomes useless by collapsing; it is very liable to generate offensive discharges. Yet, in spite of these objections, I am often driven to its provisional use, while resorting to such measures as are calculated to relieve the congestion, for after all this is the marrow of a successful treatment. In no other class of flexions will the intra-uterine stem pessary do more good than in this, and when other means fail it should be resorted to. Since, however, the subject is an important one, and since, also, a stem-pessary can benefit other kinds of flexion as well, its consideration will be reserved for a special lesson.

From the foregoing record of my experience with pessaries, it is plain that he who, in anterior displacements, trusts to mechanical means alone, is doomed to disappointment. He, on the other hand, who combines the therapeutic with the mechanical treatment, will meet with the greatest success. Under the heading of *Rapid Dilatation of the Cervical Canal*, I purpose to give an additional method of treating this stubborn class of flexions, which will, I believe, in the great majority of cases, yield the very best results.

## LESSON XI.

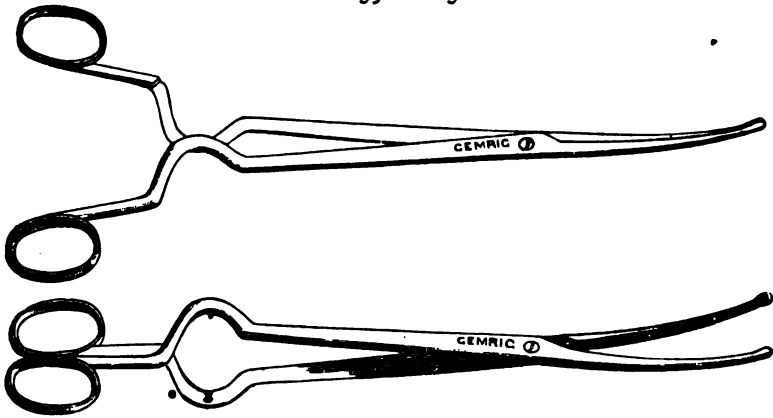
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### *Dilatation of the Cervical Canal. Rapid Dilatation; Tents.*

#### RAPID DILATATION.

RAPID dilatation of the cervical canal is a most valuable operation. It can, at a pinch, be imperfectly performed with the ordinary curved uterine dressing forceps. A far more efficient instrument, however, is Atlee's uterine dilator, which, in shape, is like the former, but whose blades are stronger, and so constructed that they diverge as the handles approach (Figs. 35 and 36). By the aid of the tenaculum, or of the volsella, ap-

FIGS. 35 AND 36.



ATLEE'S DILATOR.

plied through a speculum, the anterior lip of the cervix is seized, and the dilator is introduced as far as it will go. Upon gently stretching open that portion of the canal it occupies, the

stricture above so yields that, when the instrument is closed, it can be made to pass up higher. Thus, by repetitions of this manœuvre, little by little, in fifteen minutes' time, a cervical canal is tunneled out which could not admit the finest probe. Should the *os externum* be a mere pin-hole, or too small to admit the tip of the dilator, it can be enlarged by the closed blades of a pointed pair of scissors, which should be introduced with a boring motion. As soon as the cavity of the womb is gained, the blades are withdrawn far enough to lodge their tips just above the *os internum*, their curve is so turned as to throw the womb into a condition of flexion the reverse of the existing one, and the handles are then brought firmly together. A much more powerful curved dilator (Wilson's), whose blades do not feather, is now introduced (Fig. 37). The curve is re-

FIG. 37.



WILSON'S DILATOR.

versed as before, and the handles are then quickly screwed together. As the pain is excruciating, the patient should be previously etherized; but at this stage of the operation the ether is withheld, and the dilator kept in situ until the patient begins to feel the pain. Some of the constrictor fibres are ruptured, sometimes audibly, and a few drops of blood trickle out of the os. Occasionally a slight flow of blood will last for several days after the operation, simulating the menstrual flux. Often this flux is precipitated. And this reminds me that for dysmenorrhœa this operation should be ordinarily done during the week following the cessation of the catamenia; but for sterility, a few

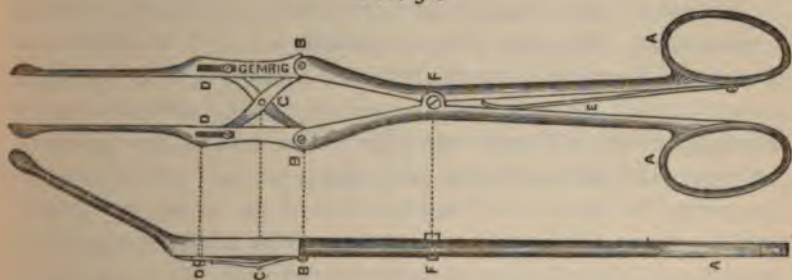
days before its appearance. This operation looks like rough usage, yet the woman usually complains merely of soreness for one or two days; and in only two out of a large number of cases, have I seen any pelvic disturbance arise, and that was readily controlled. To forestall any tendency to metritis, it is well, after such a dilatation, to pack the upper part of the vagina with a wad of cotton-wool moistened with a glycerole of morphia.

For slight dilatations, such as for the introduction of the applicator armed with cotton, or for that of the curette, the more delicate instrument is strong enough, and ether will not then be needed. In operating with either instrument, care should be taken to keep the blades from slipping up so far into the uterine cavity as to press upon the fundus; otherwise great mischief might result. To prevent this danger, I am not sure but these instruments would be the better for shorter blades, say two inches long at the most, or for a broad shoulder placed at that distance from the tip.

After such a forcible dilatation, the cervical canal does not usually return to its previously angular or contracted condition. Since lateral extension of elastic bodies antagonizes their length, the cervix shortens and widens; and the plasma, provisionally thrown out by the submucous lesions sustained by the dilated part, serves still further to thicken and stiffen its tissues. In other words, the stem-like neck of the pear-shaped womb is shortened, widened, strengthened and straightened. Hence for straightening out anteflexed or retroflexed wombs, and for dilating and shortening the canal in cases of stérility or of dysmenorrhœa, arising from stenosis or from a conical cervix, the dilator will be found to be a most efficient instrument. In its results it is not infallible; I have occasionally been obliged to repeat the dilatation, and in a few instances have been forced to use the knife. But by forcible dilatation I have, at one sitting, cured a dysmenorrhœa of long standing, and relieved all the distressing symptoms arising from stubborn cases of anteflexion, and of retroflexion.

Dr. John Ball\* recommends the use, for a few days after dilatation, of an intra-uterine stem. I have not yet found it necessary to splint the womb in this manner; but his suggestion is plainly a valuable one, and not to be forgotten. Chambers's intra-uterine stem, or a tent of glue or of slippery-elm bark, would then be my preference. A few notches cut in the last will prevent it from slipping out. Dr. Ellinger also states† that he has found forced dilatation to be a very efficacious remedy for flexions. The blades of his instrument (of which a front and side view are given in Fig. 38) are made short, so as not to

FIG. 38.



reach, and thereby injure, the fundus uteri. They also open parallel to one another, and therefore do not tend to slip in or out. In these respects it is an instrument superior to those previously described. But, on the other hand, the latter are more simple in construction, and, consequently, less expensive. I have had the beak of Ellinger's dilator changed from an obtuse angle to a slight curve, and find it more efficient with that modification, because the curve can be reversed within the womb.

I have been surprised at the improvement following a forced dilatation made, in cervical endometritis, for the easier introduction of remedies. Perhaps this may be explained partly by a change produced in the nutrition of the parts, and partly by the temporary paralysis of the constrictor fibres, just as fissures of the anus are cured by forcibly dilating the sphincters. Since

\* *New York Medical Journal*, October, 1873, p. 363.

† *Archiv für Gynäkologie*, Vol. v. Part II., 1873, p. 268.

the cervical canal tends to remain open, good results may be expected from this operation in the hemorrhage caused by sub-involution, or by fibroid tumors of the womb. In metrorrhagic attacks, and in other cases requiring the injection of fluids into the uterine cavity, I have obtained a free avenue for the escape of the liquid by first dilating the canal with this instrument, and then by introducing the nozzle of the syringe between the expanded blades. Hitherto, the great danger of the fluids being forced into uterine vessels or through dilated oviducts into the abdominal cavity, by spasm of uterine fibres and coarctation of the internal os, has deterred me from often resorting to the use of intra-uterine injections, even in stubborn cases of endometritis. But now, the conjoined use of the dilator, as described above, has, by robbing the operation of its greatest risks, inspired me with more confidence, and I now always try these injections in those cases which other means have failed to relieve. The uterine dilator will also be found very efficient in preparing the cervix for the admission of the armed applicator, and for the reception of a stem-pessary or of a large tent. What is better still, it will often obviate the necessity for using a tent.

*Uterine Tents.*—Tents may be made indifferently of sponge, laminaria, or of slippery-elm bark. By gluing together two or three slips of the last, very good-sized tents can be constructed. Sponge and laminaria tents ought not, as a rule, to be left in longer than twenty-four hours. The cervix, while they are in, should be irrigated every two or three hours, during the waking hours, with a strong solution of table salt, or, what is better, with a saturated solution of potassic chlorate. I reject carbolic acid, because it does not ordinarily mix well with water: and potassic permanganate, because it weakens the elasticity of the sponge-fibres, and stains the clothing. Such detergent injections saturate the sponge and correct the fetor. They also, by imbibition, and by capillary attraction, pass up into the uterine cavity, and thereby lessen the risk from septicæmia. When a tent is put in as a cervical plug to arrest a uterine hemorrhage, then these detergent injections are not necessary, for the blood that will ooze past or through the tent, by washing away the

putrid secretions, keeps it sweet. It then can be kept in for over twenty-four hours. For this reason a tent may, with comparative safety, be put in the day before that one on which the catamenia are expected, and be kept in during the flow. This has been repeatedly and successfully done for sterility arising from stenosis; but for this purpose, the dilator would now be my preference. The slippery-elm tent can be left in much longer, as it softens down, and becomes dissolved by the discharges. Although inferior in expansive power to the other two, yet it will be found of great value in cases requiring no very great dilatation, but a prolonged treatment, such as in flexions. The introduction of tents will be much facilitated by the previous use of the uterine dilator, and by steadying the cervix with the tenaculum or the volsella. By this means they can often be slipped in without the use of the speculum. Much time and safety will be gained if, after the introduction of one large sponge-tent, it is surrounded by a fagot of smaller tents, made of laminaria.

Let me here impress upon my readers the importance of dilating the cervical canal with but one introduction, or, at the most, with but two introductions of tents. It is not, save with rare exceptions, the tent, or the batch of tents, crowded in at the first visit, that is attended with risk, but those inserted at the second or at the third visit. The history of the reported fatal cases shows that the danger increases with every fresh installment of tents. It is *greater* at the second; *greatest* at the third. This is probably owing to the fact that the removal of the first tent, or batch of tents, more or less abrades the now irritated mucous coat of the canal, and by this raw surface are absorbed the putrid discharges generated and retained by the subsequent tents. It is especially in cases of previous pelvic inflammation, and in those of interstitial or of submucoid fibroids, that I dread the effects of a series of tents, and avoid such a use of them as much as possible. Let me, however, add that, since adopting the plan of injecting the above-given detergent solutions, I rarely see ill effects from the introduction of tents.

## LESSON XII.

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### *On the Use of the Closed Lever-Pessary, and of the Intra-Uterine Stem-Pessary.*

#### THE CLOSED LEVER-PESSARY.

TAKE it all in all, the very best pessary yet devised is Hodge's closed lever-pessary, or such a modification of it as Smith's (Fig. 27). I find however that the large majority of practitioners resort either to the occasional use of the cup-and-stem pessary, which must necessarily increase any kind of flexion of the womb, or to the routine use of that most illogical instrument, the ring-pessary. The reason of this is that none of the text-books of the day describe the mechanism of the action of the lever-pessary, or the mode of its introduction. I shall, therefore, enlarge upon the subject of this pessary in words supplemental to those already made in previous lessons.

When properly adjusted, one end of this pessary rests upon the anterior wall of the vagina, the other impinges upon the upper part of the posterior wall, behind the cervix. So placed it is in constant motion, responding to every movement of the diaphragm, and, indeed, to every movement of the body, just as the womb responds when in a state of health.

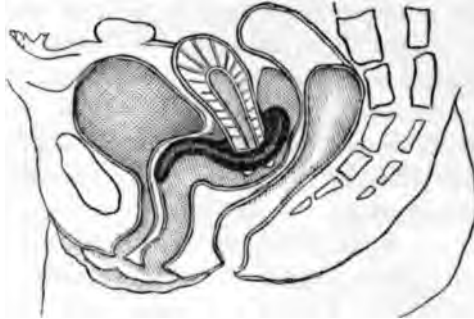
As its name indicates, this pessary acts on the principle of a lever, but the mechanism of its action is two-fold. By stretching the vagina upward and backward, it draws the cervix in the same direction. The womb then turns on its central point of ligamentous attachment, as on a fixed pivot, and the fundus is consequently tilted forwards. The womb itself thus becomes a lever, of which its point of attachment to the bladder is the fulcrum. The power is applied to the cervix, and the fundus

becomes the weight or resistance. This action remedies retroversions, but not retroflexions unless complicated with retroversion—as they usually are. Then again the pessary itself acts as a lever. The anterior vaginal wall, with the visceral pressure above it, now becomes the power applied to the lower limb or "long arm" of the lever, the posterior vaginal wall is the fulcrum or support, and the upper limb or "short arm" lying behind the cervix directly pushes up the weight, or fundus uteri. This action tends to remedy both retroflexion and retroversion.

For instance: during the act of inspiration, the descending diaphragm crowds down the abdominal viscera upon the bladder, to which are attached the cervix uteri and the anterior wall of the vagina. These organs, therefore, descend. As a result, the lower, or anterior end of the lever is necessarily pushed down by the descending anterior wall of the vagina on which it rests; while its upper, or posterior end, proportionally rises up and tilts forward the retroverted or the retroflexed fundus. In expiration the reverse takes place. The pressure is, therefore, not a steady one, but a gentle rocking one, which is the most efficient of all. It is also the one least liable to inflict injury upon the soft parts, because the points of pressure are varying ones. But to attain these ends, the pessary must be mobile, and never so large as to put the vagina on the stretch; otherwise, it loses its distinctive character of a lever, and degenerates into an ordinary ring-pessary. It should, further, impinge on the soft parts only, and take no bearing on the solid structures of the pelvis. Here I wish to modify a too-sweeping statement made in a former lesson, that its "anterior bar plants itself firmly against the posterior surface of the pubic symphysis, or against the angle formed by the converging rami of the pubic bones." True, this is liable to happen when the Hodge pessary is too large, or the curve faulty, or the womb too heavy; and on this account, as well as for others there indicated, I much prefer Smith's modification. But such a firm basis of support was not intended by the inventor, and his pessary, as well as the Smith pessary, always acts best when the lower bar presses upon the soft and yielding anterior wall of the vagina (Fig. 39.) instead of upon the pubic bones.

Both the Hodge and the Smith pessary have two curves, a small one and a large one, making the instrument resemble

FIG. 39.

THE SMITH PESSARY IN POSITION. (*Cleveland.*)

somewhat the letter S. But in the latter the small curve is sharper than that of the Hodge pessary; and, on this account, the extremity of its large curve is the one which must *always* be introduced first, and be placed behind the cervix of the womb. This rule generally holds good also with the Hodge pessary, but there are certain exceptions. Thus, if in retroversions or retroflexions the fundus of the womb is too sensitive to stand the greater pressure of the large curve; if the vagina is short and rigid, or the womb not very movable; the Hodge pessary may be reversed, and the small curve placed temporarily behind the cervix, until these difficulties are overcome. This plan may also be tried whenever the cervix does not project into the vagina, but is flush with the posterior vaginal wall; and whenever an ante flexion, an anteversion, or a prolapse of the womb is not relieved by the introduction of the large curve first.

For the guidance of those of you who have never used the lever pessary, I subjoin the following general rules:

1. The uterine or upper end must always lodge *behind* the cervix uteri.
2. *Always* in the Smith pessary, and *usually* in the Hodge pessary, the uterine end is the one which has the large curve.

3. The concavity of the large curve must always look toward the anterior wall of the vagina, and the convexity rest upon its posterior wall.

4. When *in situ*, the pessary should fit so loosely as to be freely movable, and to admit the finger very easily between its anterior bar and the pubic symphysis.

5. In retroflexions the pessary must be long enough to span the angle of flexure in the womb, and press on the fundus; otherwise, the bent womb straddles the pessary and the flexion becomes worse.

The introduction of the lever pessary can be readily effected by a practiced hand in any posture the woman may assume. But the following method is perhaps the best: The woman lies on her back across the bed, as near to the edge as possible, and with her knees drawn up. The physician passes the fore and the middle finger of his left hand just inside the vulva, slightly separates them, and at the same time gently presses the perineum downward. The tips of the fingers of the right hand so hold the pessary that the concavity of its large curve looks toward the woman's left thigh; in other words, with the free end of the pessary in a line with the vulval opening. This end of the pessary is now to be slipped in between the fingers of the left hand, and the whole instrument made to enter the vagina by a firm downward pressure on the perineum. When it is wholly within, the guiding fingers of the right hand turn it half round on its long axis, so as to make the concavity of its large curve look directly upward toward the anterior wall of the vagina. The pessary will now be found quite immovable—and with its upper bar pressing firmly on the front of the cervix. This position gives more or less pain to the woman, and the physician, therefore, hastens to introduce the index finger of his right hand through the loop, or opening of the pessary, and hook down, or press down the upper bar until it slips over the cervix into the *cul-de-sac* behind. In order to facilitate this last manœuvre, I often tilt the lower bar of the pessary upward with the fingers of the right hand, and depress the upper bar by downward pressure, with the index finger of the left hand. But

this is more easily understood by a practical demonstration on the living subject, than by any verbal or written description. Finally, to verify the accuracy of the adjustment, the finger should not be withdrawn from the vagina, until it has felt the cervix projecting through the loop of the pessary.

No properly fitting lever pinches ; but, like any other pessary, it ought to be occasionally removed, and the vagina examined for abrasions. The most common seat for an abrasion is at the junction of the cervix with the posterior wall of the vagina. For purposes of cleanliness, the patient should be instructed to use a daily vaginal injection of tepid water. She should be told also to report to her physician whenever a sense of uneasiness is felt.

To remove the pessary the fore-finger is hooked loosely over the lower bar, and traction gently made, at first backward, and afterward in the direction which the lever will of itself take. It then usually rotates spontaneously on its long axis, and comes out edgewise in the curve of the outlet.

#### THE INTRA-UTERINE STEM-PESSARY.

An intra-uterine stem-pessary is a splint which must perforce straighten out the existing flexion. But the endometrium often resents the intrusion of such a foreign body, and some hazard attends its use. Some four years ago I wrote a series of articles for the *Medical and Surgical Reporter*, of Philadelphia, in which I termed this instrument a good one, a very good one—to watch. I had then just passed through an unpleasant experience with it in two cases—an experience which was not at all reassuring. In one case, after the introduction of Wright's bifurcating metallic stem, my patient suffered much pain for several hours, before I could be fetched to remove it. A smart, but luckily manageable attack of perimetritis followed. In the other case, the lady passed through unspeakable agony before I could reach her bedside. Fortunately nothing more than an ephemeral pelvic soreness ensued. With this unhappy experience fresh on my mind, I was led to condemn, in these articles, the use of the intra-uterine stem. But, since then, a ripper ex-

perience has taught me a good deal about this pessary, and has wholly changed my views with regard to its use. I now hold that there are certain stubborn cases of ante flexion, and, for the matter of that, of retro flexion too, which can be satisfactorily treated in no other way than by this stem. Not a month now passes without finding one or more of my patients under its use. So changed, indeed, are my views on this point that, in a discussion on this instrument at one of the meetings of the American Gynecological Society, held in Boston, I stated that I had left two unmarried ladies in Philadelphia, each wearing this kind of pessary. I now, however, take certain precautions which I did not take before—precautions which close observation has taught me are needful, and which give me far greater confidence.

In the first place, I have pretty much discarded all metallic stems, except the galvanic ones for special purposes apart from flexion, and I use either a smooth glass, or a smooth hard rub-

FIG. 40.



HARD RUBBER STEM-PESSARY.

ber stem, or the split rubber one, such as Chambers has devised, taking good care that the spring of its limbs is feeble.

FIG. 41.



CHAMBERS'S STEM-PESSARY.

Secondly, I never introduce one in my office, but always at the home of my patient. Thirdly, the stem must measure fully half an inch less than the uterine cavity. If this rule be not

observed, a misstep, the succussions of coition, or, as I have seen it in one instance, the act of lacing a boot, may bring the fundus into violent contact with the point or the points of the stem, and cause much pain, and perhaps mischief. Fourthly, at my first visit I invariably pass a loop of stout thread through the button of the stem, by which the woman can herself withdraw the pessary; and she gets orders to do so, whenever the pain produced by the introduction, instead of lulling, goes on from bad to worse. As soon as the womb has become tolerant of the foreign body, the loop is cut and the thread removed, for by this time it will have become somewhat fetid. Since observing these rules of guidance, I have not had any bad result from the use of this instrument. Yet I frankly confess to feeling more or less on tenter-hooks until the first week is passed, and always feel relieved whenever the stem has been removed for good.

There is one objection to its use in married women, and that is the sterility which it usually enforces. I have, however, met with one marked exception to this rule: A lady afflicted with very severe dysmenorrhœa from an acute ante flexion, had been married three years without conceiving. At the request of her physician, I forcibly dilated the cervical canal, under ether. This did her good, but it did not cure her sterility, nor free her wholly from dysmenorrhœa; and I now recommended Chambers' stem. It was introduced with the understanding that moderate sexual intercourse might be indulged in, provided no soreness were thereby induced. Very shortly afterwards, while still wearing the stem, she missed a monthly period, and evidently became pregnant. The very interesting question now came up, what was to be done with the pessary? We were afraid to leave it in longer, lest it might interfere with the development of the ovum. On the other hand, we feared to take it out, lest the diverging arms of the stem might scrape away the yet small ovum, or that the suddenly returning flexion might dislodge it. We finally decided on the latter course, and removed the pessary without interfering with the gestation, which steadily went on for a few weeks longer and then unfortunately ended in a miscarriage.

In restricting the use of the intra-uterine stem to cases of forward uterine flexion alone, some authors seem to me too exclusive. I habitually use them in those cases—fortunately not the rule—of retroflexion, in which the body of the womb, by the congestion of impeded venous circulation, is too tender to bear the pressure of even the air-cushion. The introduction of the stem—and the split stem is the only one here which will stay in,—by straightening out the bend, furthers the return-current of blood, relieves the congestion, and prepares the womb for the ordinary vaginal pessary. Conjoined with the stem in these cases, the Hodge pessary will often be needed to lift up the fundus of the now retroverted womb.

Since the introduction of a stem-pessary is sometimes no easy matter, a word or two on this point may not come amiss. I find that this difficulty can very generally be overcome by the preliminary use of the uterine dilator. When, however, the cervix is very crooked, or the uterine angle an acute one, the dilation will fail in its object, and I then resort to the following manœuvre: First, bend the tip of the uterine sound into a short curve, but yet sufficiently sharp to pass the *os internum*, while the anterior lip of the cervix is held fixed by a tenaculum. Now, when the tip of the sound touches the fundus, its curved portion will have cleared the *os internum* and lie above it, and the cervical canal will therefore be occupied by the straight portion of the sound, and will, of course, be proportionately straightened out. A straight surgeon's probe can now be made to enter the uterine cavity, and as it passes the *os internum* the sound is withdrawn. Along this probe, as a guide, one can now readily slide in the stem.

Stem-pessaries always irritate the endometrium more or less, and they, therefore, cannot as a rule be kept in for any great length of time. This irritation is of value in reducing the size of a sub-involuted or an otherwise enlarged womb. But it also tends to produce leucorrhœa or menorrhagia, and may on that account compel the discontinuance of the treatment.

## LESSON XIII.

### *Different Kinds of Pessaries. Abdominal Supporters.*

#### DIFFERENT KINDS OF PESSARIES.

THERE are a number of other pessaries to which some reference should be made, as they occasionally come into play. Of those with an external, or extra-vaginal, base of support the best are Cutter's Retroversion Pessary, and the Thomas-Cutter Pessary.

FIG. 42.



CUTTER'S RETROVERSION PESSARY.

FIG. 43.



THE THOMAS-CUTTER PESSARY.

They are kept in position by a perineum strap, which is buckled to a waist strap, and they act by restoring the posterior vaginal wall to its natural length, and by lifting up the dislocated fundus. By the shortening or by the lengthening of the perineum strap which sustains them, the pressure on a tender womb

or on a prolapsed ovary can be graduated. They have also the further merit of being removable and replaceable by the woman herself. As a set-off, their presence is a constant source of annoyance, and they are liable to chafe the perineum. They should, therefore, as a rule, not be resorted to until intra-vaginal pessaries have failed.

FIG. 44.



GODDARD'S RING-AND-STEM PESSARY.

FIG. 45.



FIG. 46.



CUTTER'S RING-AND-STEM PESSARY. JAMES'S CUP-AND-STEM PESSARY.

Next in rank come the Ring-and-Stem pessaries and the Cup-and-Stem pessaries. These instruments are so stiff, so unwieldy and so expensive, that it is a comfort to know that they are rarely needed. They are useful in those conditions in which there exists a complete prolapse of the womb and vagina, together with an absence of the vaginal portion of the cervix—

cases in which, the vagina being flush with the *os externum*, the ring pessary or the closed-lever pessary cannot be kept behind the cervix. They also come into play when the perineum has been torn, or the vagina is so relaxed that no other kind of pessary can be retained. Again, in the early stages of prolapse from hypertrophic elongation of the supra-vaginal cervix, they will keep the womb up better than any other instrument. On the other hand, in retroflexion and antelexion they do much harm, for by pushing up the cervix of the retort-shaped womb without supporting the bent fundus, they increase the flexion. Yet they are very constantly being used, or rather abused, for these dislocations.

The best Ring-and-Stem pessaries are Goddard's (Fig. 44), and Cutter's (Fig. 45.) Of the Cup-and-Stem pessaries James's (Fig. 46.) is perhaps the best. I must, however, own to knowing very little about these instruments, for it is an exceedingly rare thing for me to be driven to their use.

FIG. 47.



SPOONER'S PESSARY.

Dr. Spooner, of this city, has devised a hybrid pessary—a Meigs' ring with a handle to it—of which I can speak more intelligently. When the woman can bear the pressure of it, it can be relied on to keep up the prolapsing womb and vagina (Fig. 47); but it needs constant watching, as the arched portion is very liable to chafe the posterior wall of the vagina.

When everything else fails, a large wad of oakum makes an

excellent substitute for a pessary. With it I have a limited experience, but enough to add my recommendation to that of some excellent British physicians. It keeps much sweeter than cotton, is far more elastic, and shores up the womb better.

On account of their short life and very bad smell, all soft-rubber pessaries should be deemed merely make-shifts. They are to be looked upon simply as temporary expedients, to pave the way for hard-rubber ones, such as cannot at first be borne. For such a use they serve a good purpose.

Since pessaries of soft metal can be bent into any shape, they are invaluable for irregular or for lateral displacements of the womb. When one of these pliable pessaries has been made, after successive trials, to fit, so to speak, the uterine corns and bunions, it can be used as a model for one made of silver or of hard rubber.

Every kind of pessary needs watching, for it is liable to produce not only abrasions, but deep ulcerations of the vagina. The site of these lesions is usually behind the cervix; but it also is found on the anterior wall of the vagina, just behind the symphysis pubis. Every pessary should, therefore, be taken out occasionally, so that the soft parts on which it rests can be examined. An elastic ring is more liable to do harm than any other kind. Within the last four years I have twice been called upon to remove a Meigs' ring, which had become imbedded in the soft parts. One ring, after being left in for two years, had sunk into a bed of granulations, which overarching, had united to one another, and imprisoned the pessary for one-half of its circumference. It was removed by a bloody dissection. The other having been untouched for five years, the mucous membrane had grown over about one-third of its circumference. A physician had attempted its removal, but the hemorrhage proving alarming, he sent her to me. By cutting its free segment through with a pair of bone-forceps, I readily removed it; but the bleeding was free enough to need a tampon.

Such dangerous ulcerations I have never seen caused by the closed-lever pessary; but it often rubs off the epithelium behind the cervix, and therefore needs some watching. Such an

abrasion usually gives warning by a peculiar reflex pain in the back of the head and in the nape of the neck. It should always be suspected whenever a pink leucorrhœa shows itself. To heal these abrasions it will be needful sometimes for the woman to go to bed, so as to take off the gravity-pressure of the womb. Sometimes it will be best either to remove the pessary for a few days, or to replace it by another with a different curve.

To prevent these abrasions, and also to ease the pain often set up by the pessary on a tender or a heavy womb, I have found it a very good plan for the woman to assume several times a day the knee-breast posture, in order to permit the air to enter the vagina. To Dr. H. F. Campbell, of Georgia, are we indebted for the "Pneumatic Self-replacement of the Uterus," as he calls it. He describes the posture as follows: "Let the patient loosen all strings and fastenings of her dress and corsets, and place herself on the bed on her knees, bending the body for-

FIG 48.

KNEE-BREAST POSTURE. (*From Campbell.*)

ward till the head and thorax are brought down to the same plane as that on which the knees are resting, namely, the surface of the bed. The face may be turned to one side, resting in the two hands, while the elbows are spread out widely from the sides. The knees are to be separated from five to ten inches, and the thighs must be perpendicular to the bed." From this diagram (Fig. 48), which I have borrowed from

Dr. Campbell's admirable paper,\* it will be seen that the trunk of the woman's body is supported by a tripod consisting of the two knees and the upper portion of the thorax. If she now refrains from straining and breathes naturally, there will be established a reversal of gravity which relieves the womb from its own weight, and from that of the superincumbent viscera. If, further, the labia are separated, air by atmospheric pressure will rush into the vagina, the belly and its contents will sag downward, and this displacement will necessarily carry up the womb away from the pessary. Since it is somewhat awkward for the woman to release one hand from her face and reach her vulva for the purpose of separating the labia, Dr. Campbell advises that, previously to assuming the knee-breast position, the woman should insert into the vagina a small glass tube open at both ends, and long enough to project externally. For this tube I have found the empty barrel of the old-fashioned hard rubber cylindrical "female syringe" an excellent substitute. Finally, let me add that, before introducing any kind of vaginal pessary, it is good practice to put the woman in the knee-breast posture or in the semi-prone posture, and admit air into her vagina. In this way the displaced womb will be replaced, and be the more ready to receive the support of the pessary.

## ABDOMINAL SUPPORTERS.

Within a few years I have become convinced that much advantage can be gained from a judicious use of braces as adjuncts to the treatment of uterine disorders. Alone, they may not cure, but they certainly will often palliate those symptoms which are referable to pressure upon the pelvic organs. They seem to me to be especially indicated whenever a pessary fails to relieve the woman of the feeling that the lower portion of her abdomen needs an external support, a support which she instinctively seeks to give by pressure with her hands. There certainly is, in my experience, no surer way of getting a bed-ridden, hysterical woman on her feet again, than by their use. The moral effect of their adjustment is, in such cases, good; and

\**Transactions American Gynecological Society*, Vol. I., 1876, p. 208.

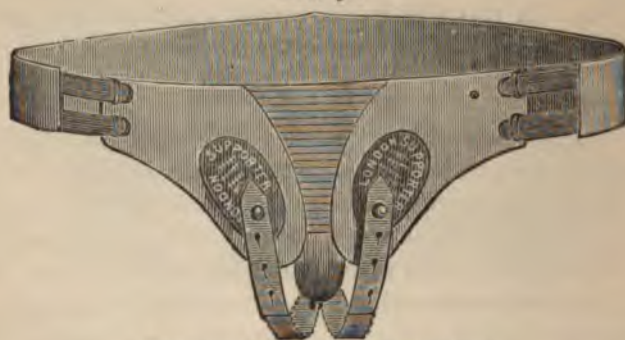
by interposing a shelf upon which the abdominal viscera partly rest, they relieve a congested womb or an irritable ovary from undue pressure. The proprietary character of most of these instruments has very naturally prejudiced the minds of the profession against them; but *fas est ab hoste doceri*. The best ones are Hood's Abdominal Supporter (Fig. 49), the London Abdominal Supporter (Fig. 50), and Fitch's Abdominal Supporter (Fig. 51).

FIG. 49.



HOOD'S ABDOMINAL SUPPORTER.

FIG. 50.



LONDON ABDOMINAL SUPPORTER.

The *rationale* of their action is briefly as follows: From the oblique inclination of the pelvis to the spinal column, which is produced by the natural hollow in the back and by the more or less sigmoid shape of the spine, the axis of the trunk does not coincide with that of the pelvis. The womb and the ovaries,

therefore, lie in a measure under the shelter of the sacral promontory and of the lower lumbar vertebræ. For the same reason, the sum of the weight of the supernatant abdominal

FIG. 51.



FITCH'S ABDOMINAL SUPPORTER.

viscera is spent upon the smooth surface of the pubic bones, and upon the adjacent abdominal wall, but not upon the womb, although it is the lowest of the pelvic organs. The little pressure to which it is subjected is not in a vertical line, but in an oblique one.

A displaced or a flexed womb may in itself give rise to no unpleasant symptoms whatever; but let it once take on a congested or an inflamed condition, and the weight of the abdominal viscera at once becomes oppressive. If now, pessaries being found inadmissible, a suitable brace be put on, a portion of this load is taken off by its pad, which, by pressing the abdominal wall upward and inward toward the sacral promontory, forms a shelf upon which the viscera rest. Further, by this virtual shortening of the conjugate diameter of the superior strait, the space into which the viscera tend to settle is lessened, and consequently, the womb is to that extent the more protected from sudden succussions.

Again, whenever by the absorption of the fat-packing in the

omentum and in the abdominal walls, by the general decrepitude of old age, or by the muscular debility of ill-health, the retentive power of the abdomen is lost, the woman's figure often becomes greatly changed. Her spine now loses its double curve and becomes bow-shaped; her shoulders droop, her chest bends forward, she stoops; the pelvis, departing from its obliquity, becomes more nearly at a right angle to the spine; and the axis of the superior strait, instead of striking a point in the *linea alba* below the umbilicus, tends now to coincide with that of the trunk. As a consequence the intestines crowd down into the pelvic cavity, and the sum of their weight now converges, not upon the pubic bones and their adjacent muscles, but directly and vertically upon the nicely-poised reproductive organs. But since the womb and the ovaries were never intended by nature to be the Atlas of the abdominal organs, the one resents the burden, and the other bends and sags down under it. A pessary, by shoring up the womb, gives some relief, but common sense points clearly to the necessity of bringing back the erect carriage, of restoring the sigmoid curve to the spine, and of swinging the pelvis back into its oblique position. To meet these indications a brace is needed, one which is both abdominal and spinal.

Guided by these hints, I feel sure that some of you will be able to get once more upon her feet a patient who has been doomed by her friends to a bed-ridden life, on account of some supposed spinal affection. For let me here remark that, since most women in delicate health exhibit one or two very tender spots in the spine, difficult locomotion dependent upon uterine or upon ovarian trouble is very liable to be mistaken for "spinal irritation" or "spinal inflammation."

## LESSON XIV.

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### *Prolapse of the Womb.*

PROLAPSE OF THE WOMB FROM SIMPLE DESCENT—PROLAPSE OF THE WOMB FROM HYPERTROPHIC ELONGATION OF THE INFRA-VAGINAL PORTION OF THE CERVIX.

THE term *prolapse of the womb*, in its primary and strictly etymological sense, means the displacement of the womb as a whole by descent. A wider meaning has, however, been loosely given to it, partly because our nomenclature does not keep abreast with the times, and partly because it is not easy to give up a term firmly established by long use. Three widely different affections are now included under it, viz.: (a) A simple descent, or settling down of the womb. (b) A hypertrophic elongation of the infra-vaginal portion of the cervix. (c) A (so-called) hypertrophic elongation of the supra-vaginal portion of the cervix. In its present comprehensive sense, then, the term *prolapse of the womb* has come to signify a condition of that organ in which the *os tincae* is found lower down than natural, the position of the fundus being practically disregarded. Apart from the violence thus done to language, there is questionable propriety in including under one general name three distinct lesions, simply because they happen to have one symptom in common.

#### PROLAPSE OF THE WOMB FROM SIMPLE DESCENT.

In the simple prolapse of the womb—which should more properly be called a substantial descent of the womb,—that organ as a whole, together with its furniture of tubes, ovaries,

and ligaments, merely sags down, dragging with it the vagina and the bladder. The degree of displacement being proportioned both to the weight of the prolapsing body and to the relative relaxation of its supports, the womb will be found either more or less low down in the vagina, or else wholly extruded from the vulva. By many writers, the transitional stages of descent while the womb is yet within the vagina are included under the term *prolapsus uteri*; but when the descent is complete, and the womb wholly or in part outside of the vulva, the condition is called *procidentia uteri*. I must, however, warn you that these distinctive names have not been adopted as such by the profession at large; for by some they are employed interchangeably, as if they were synonyms, and by others in a reversed sense. The terms *complete* and *incomplete* would, therefore, be far more acceptable.

Studies from life quicken our apprehension far better than diagrams or verbal descriptions, and I shall therefore illustrate this form of displacement from one of our patients. This tall, thin woman is unmarried, and, although over sixty years old, is obliged to work hard for a living. Five years ago she began to suffer from a leucorrhœa, from dragging pelvic pains, and "bearing down" sensations. These symptoms had lasted for a few months, when one day, as she was in the act of lifting a scuttle of coals, "something gave way," and with a sudden pang of pain, her womb jutted out from the vulva. At first, after being replaced, it would stay so for one or two days; then, only for a few hours: but now, as long as she is on her feet, it hangs outside of her body. After getting into bed, she is always able to push it back into the vagina, where, unless she coughs, it remains until morning. Of course, by this complete descent of the womb, all her former sufferings have been heightened; while in addition she now experiences difficulty in emptying her bladder, and strains much at stool.

As I expose the parts, you see a pyriform tumor hanging from the vulva. At its apex there is an opening—the *os externum*—into which I now pass up this sound to a distance of not quite two and a half inches. Now, since I can feel the tip of the

sound outside of the vulva, and can with my fingers also define in the tumor the whole outline of the womb; and since a rectal examination informs me that the womb and vagina have vacated the pelvis, there can be doubt that we are dealing with a case of complete prolapse, of true hernia, of the womb. The vagina being of course completely inverted, as much so as a stocking turned inside out, constitutes the hernial sac; but the weight of the womb has not been sufficient to smooth out its rugæ. I wish you particularly to note the fact that the womb is retroverted and somewhat retroflexed. This results necessarily from the mechanism of descent, whenever the womb is the primarily prolapsed organ. For, since the womb is, as it were, slung at its middle, viz., the os internum, by its attachment to the bladder, it follows that in its descent the fundus must hug the sacrum, and describe the arc of a circle around the internal os as the centre of motion. Further, since the fundus is the heavier end of the suspended body, and also is forced down by the bulging in of the rectum into the vagina during the act of defecation, whilst the cervix is braced against the pubes or the neck of the bladder, some degree of bending will usually ensue. In fact, a retroversion or a retroflexion is but a modified form of prolapse, and must perforce precede the extrusion of a primarily prolapsed womb.

This simple form of prolapse is very generally the result of senile atrophy, and is therefore far more commonly found in old women. The pelvis has lost its padding of fat; the lax and wrinkled vagina no longer holds up the womb; the retentive power of the abdomen has been weakened by the absorption of the fat-packing in the omentum and in the abdominal walls. By the general decrepitude of old age, or by the muscular debility from disease, the woman's figure becomes altered. Her spine loses its sigmoid shape, her shoulders droop, and her chest bends forwards. Hence, the axis of the superior strait, instead of striking a point on the abdomen below the umbilicus, tends now to coincide with the axis of the trunk. As a consequence, the intestines crowd down into the pelvis, and their weight is spent, not upon the pubic bones and the adjacent portion of the

abdominal wall, but directly upon the womb, which now no longer lies under the shelter of the sacral promontory and of the lower lumbar vertebræ.

In younger women there are other causes which bring about this form of prolapse. For instance, those which increase the weight of the womb, such as congestion, sub-involution, and the presence of a polypus or of a fibroid tumor; those which weaken the lower supports of the womb, and shorten and straighten its line of descent, such as a shallow or flat sacrum, a relaxed vagina, and perineal lacerations; those, finally, which produce succussion or compression from above downwards, as a chronic cough, long-continued vomiting, tight lacing, the wearing of skirts supported from the waist, and last, not least, the prolonged use of the obstetric binder, under the mistaken notion that it preserves the shape. Again, there are acute cases of prolapse from sudden jars, or from abrupt abdominal pressure.

This form of prolapse was deemed almost the only one until Huguier, in 1859, contended that so far from being a common form, it was an exceedingly rare one, and especially so when compared with that caused by a hypertrophic elongation of the supra-vaginal portion of the cervix. As you grow, and as knowledge grows, you will often be constrained to strip off even the poor tatters of some traditional belief; but I cannot yet ask you to adopt Huguier's opinion, supported though it is by many careful observers. My own observations teach me that the simple prolapse of the womb is by no means an infrequent affection of women—preferably of old maids—who have passed the climacteric, or who have been unbraced by chronic ailments. Nor have I failed to find it in younger subjects; although in such cases, either from imperfect involution after labor, from inflammatory action, or from subsequent derangements of circulation in the pendant mass, and also from friction and exposure to the air, there is usually some degree of hypertrophy of the womb, in its totality, however—fundus, corpus, and cervix—and not in one portion to the exclusion of another.

The indication in the treatment of this poor woman is clearly to return the womb and keep it in its place. As the perineum

is intact, I think this can be done by Hodge's pessary or by some one of its modifications, which act by restoring the posterior wall of the vagina and by propping up the fundus. At the same time I shall enjoin her to keep the contents of her bowels soluble, to avoid the lifting of heavy weights, to wear loose dresses, and to support her underclothing by shoulder-straps.

Should the vagina turn out to have lost its elasticity, or should the floor of the pelvis have become too slack to act as a stable fulcrum, the anterior bar of the Hodge, or closed-lever pessary will lie below the symphysis pubis—that is, too much in the axis of the vagina—and will consequently slip out. Under such circumstances I may have to resort to the ring-pessary, or may put in the Hodge pessary wrong end foremost. Or else I may either so unbend the downward curve of the anterior bar as to efface it, and make the instrument crescent-shaped; or I may exaggerate this downward curve so as to give the pessary an S-shape. By such a reversal of position, and by these changes of form, the anterior or vulvar bar of the pessary will rise up higher and lodge behind the symphysis pubis. The relatively long and high anterior arm of Fowler's pessary (Fig. 52) assumes

FIG 52.



FOWLER'S PESSARY

this position behind the pubic bone very well, and makes it a useful instrument in such cases. As its basin catches the cervix and holds it back, this pessary is also admirably suited for retroversions and retroflexions. Should the soft parts resent the increased pressure thus brought to bear on them, one may have to fall back on those pessaries which have an external or extra-

vaginal base of support, such as I have described in a preceding lesson.

Were this woman's womb hypertrophied or otherwise diseased, in addition to the use of the pessary a special treatment should be addressed to these complications. Had she a torn perineum, it would be well not only to restore it, but, by prolonging the incisions, to narrow still more the outlet of the vagina. This operation will of itself temporarily prevent the extrusion of the womb; but it can give permanent relief only when it furnishes to the pessary a firm base of support. To maintain an erect carriage, and to restore the sigmoid curve to the spine, a brace with a pad over the lumbar vertebræ answers well. In general, whenever the prolapse is incomplete, and dependent, as it then usually is, upon some congestive or inflammatory condition, begin your treatment, not only with pessaries, but with the usual remedies for such lesions. By removing the cause you remove also its consequences. Here let me say that pessaries are sometimes needful, not so much for any great amount of prolapse, as for the dragging of the womb upon an inflamed or a neuralgic broad-ligament. The womb, therefore, needs shoring up, but on the other hand it must not be pushed up so high as to stretch this tender ligament. The happy mean between this upward and downward traction is sometimes very difficult to attain.

PROLAPSE OF THE WOMB FROM HYPERTROPHIC ELONGATION OF  
THE INFRA-VAGINAL PORTION OF THE CERVIX.

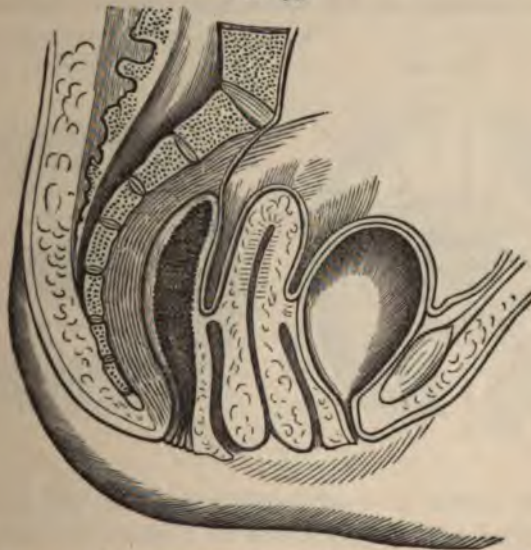
In the second variety of prolapse—that from a *hypertrophic elongation of the vaginal portion of the cervix*—an entirely different condition obtains. Through nutritive activity this portion of the cervix becomes larger and much longer than natural; and although by its increased weight it usually drags down the body of the womb somewhat, yet this is so unessential a sequence that the affection has been termed “prolapse without locomotion of the fundus.” In this variety, the cervix so rarely attains to a length greater than that of the vagina that I have met with but few examples in which the *os tincae*

protruded from the vulva. You are all, however, familiar with that modified form of it, the conical cervix, which is interesting from its bearing upon dysmenorrhœa and sterility.

Whenever the vaginal portion of the cervix is so long as to protrude from the vulva, it is, as a rule, either a congenital condition, or an exaggeration of a congenital condition, and is therefore found in nulliparæ. In child-bearing women, through metritis from the contusions of repeated labors, the vaginal portion often takes on an hypertrophy, but this is then less an elongation than a general increase in every direction. There is yet another form of hypertrophic elongation which involves one lip of the os, usually the anterior. The prolongation becomes proboscis-like, and from its resemblance to the snout of the tapir, has gained the name of *tapiroid*. All these acquired forms of hypertrophy are usually traceable to the traumatism of labor, or to defective involution.

From this diagram (Fig. 53) you can see that the diagnosis of these affections is not difficult. Their character is sufficiently

FIG. 53.



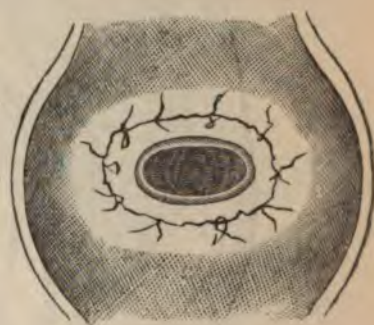
PROLAPSE FROM GROWTH OF INFRA-VAGINAL CERVIX. (HEWITT.)

marked by the unnatural length of the uterine cavity, and by the absence of vaginal invagination and of vesical prolapse. The tapiroid cervix may possibly be mistaken for a polypus, but, as the remedy in each is the same, no harm could happen. In all the varieties of hypertrophy attended by elongation, the redundant portion of the cervix when troublesome must be cut off. For this purpose the *écraseur*, and the galvano-cautery, have each its advocates. But these instruments leave a large raw surface which can heal only by granulations, and consequently slowly. Besides, the os is in danger of closure from cicatricial contraction. Dr. Sims recommends a circular amputation of the cervix by the scissors, the cleanly-cut stump being afterward covered by sliding over and stitching together the edges of the surrounding mucous membrane. Healthy tissue being thus substituted for unhealthy, there will be no return of the disease, and, further, the wound sooner heals. The disadvantage of this operation, however, lies both in cicatricial closure of the os, and in the danger of secondary hemorrhage, the vaginal lid not making compression enough to close the open-mouthed vessels. I therefore, in some of my cases, excised the redundant por-

FIG. 54.



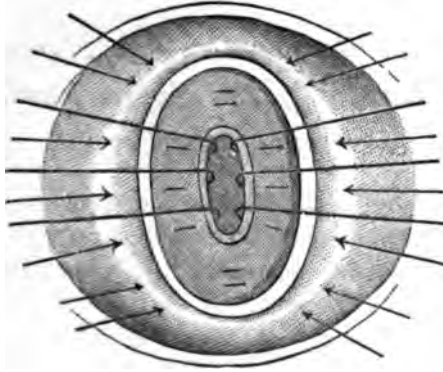
FIG. 55.



tion of the cervix in a wedge-shaped piece, and brought the flaps together, as in the operation for bilateral laceration of the cervix, by deep stitches passing through the whole substance

of the cervix. But, finding that the resulting os was usually too small, in other cases I stitched the whole rim of the os to the vaginal mucous membrane (Figs. 54 and 55). In one case I blended the two operations (Fig. 56), by deep and su-

FIG. 56.



perfcial stitches. Each of these operations was followed by good success. They were devised by Hegar, to whom I am also indebted for these diagrams which illustrate the manner of introducing the stitches.

## LESSON XV.

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### *Prolapse of the Womb from Hypertrophic Elongation of the Supra-Vaginal Portion of the Cervix.*

LET us pass now to the third form of prolapse of the womb, that from *hypertrophic elongation of the supra-vaginal portion of the cervix*. But to understand it fully we must first furbish up our knowledge of the anatomy of the parts involved.

The womb is described as having a body (or corpus) and a neck (or cervix). The latter is divided into two unequal portions: that which is comprised between the os externum and the os internum, and which, being alone furnished with Nabothian glands, I shall, for the sake of distinction, call the *glandular* portion; and that which is called the isthmus, viz., the intermediate and contracted portion which unites the fusiform and glandular cavity of the neck to the triangular cavity of the body. Muscular fibres are very sparse in the isthmus. At a point directly above the os internum, they are not to be found; but they become more abundant as the fundus is approached.\* The outside length of the healthy multiparous womb is about three inches. Of this the glandular portion of the cervix measures approximately one inch and a quarter, the isthmus one-half of an inch, and the body one inch and a quarter.

By the terminal fibres of the vagina, which gird it at the middle third of its glandular portion, the cervix uteri is still further divided into the infra-vaginal and the supra-vaginal portion. The free extremity corresponds to the infra-vaginal portion; about this there is no dispute. But the supra-vaginal portion of

\* *Schroeder's Obstetrics*, Am. Ed., 1873, pp. 60, 75.

the cervix, as commonly described, is that portion of it which lies between the apparent vaginal insertion and the body of the womb. It therefore is made to include the upper third of the glandular portion of the cervix, and the whole of the non-glandular portion, viz., the isthmus; and these two portions are generally believed to be the seat of the elongation. But this strikes me as an error, founded upon a misconception of the true extent of the supra-vaginal portion of the cervix.

Anatomically, this portion of the cervix is limited to the isthmus, and is therefore above the glandular portion. For, although the bulk of the vaginal fibres lie below the internal os, and the surface of attachment is to the eye a narrow one, yet in reality it is a broad one, covering two-thirds of the cervix, and reaching up to the os internum, where its fibres end.

Again, the base of the bladder rests upon the anterior wall of the vagina, to which it is fused by connective tissue, and it is also firmly attached to the anterior aspect of the cervix as far up as the os internum. These fibres of attachment are so closely blended with those of the vagina, that the supra-vesical portion of the cervix is practically the supra-vaginal portion, and each, therefore, lies above the os internum, and consequently above the glandular portion of the cervix. I beg you to bear these anatomical facts in mind, because on them hinge the arguments by which I hope to prove to you that the elongation found in this affection is not essentially hypertrophic, but is the result of traction and growth; and that it is not the commonly accepted supra-vaginal portion of the cervix which is principally lengthened out, but rather the supra-glandular portion of the womb, that is to say, the isthmus and the lower portion of the corpus.

By studying this diagram (Fig. 57) it will be plain to you that a wide difference subsists between prolapse of the whole womb by simple descent, and a prolapse from an elongation of the (so-called) supra-vaginal portion of the cervix.

The term prolapse, as applied to this kind of elongation, as well as to that of the infra-vaginal portion, is a misnomer; because, although in both the cervix may protrude from the vulva,

it does so more through elongation than from displacement. There is, in other words, a descent of the cervix—a prolapse of the cervix, if you please—without necessarily any sinking down

FIG. 57.



whatever of the fundus. Indeed, these two affections would seem to imply such a firmness in the suspensory ligaments as should, at first, keep the fundus from sagging down in the pelvis. This brings us at once upon debatable ground; but we will prudently keep neutral, and not display our colors until the "situation" has been studied out. But for that matter, to tell you the truth, I have hardly yet been able fully to make up my mind and range myself under any one banner. The question of hypertrophic elongation is to the gynecologist what the late Schleswig-Holstein question was to European diplomatists. "I and another man," said Lord Palmerston, "were the only two persons in Europe who understood this question. He is dead, and I—well, I have forgotten all I knew about it."

The woman who has just been brought in is greatly afflicted by the disease which we are discussing. In order to spare her

feelings, and to give us ample facilities for studying the condition of her reproductive organs, I have had her completely etherized. She is forty-one years old, but hardship and overwork make her look much older. Her family consists of an invalid husband and six children, all of whom she supports by taking in washing. Five of her labors presented no difficulties; but the sixth, four years ago, proved tedious from the size of the child's head, and ended with the mishap of a torn perineum. She never afterwards felt strong; had lingering lochia, more or less leucorrhœa, "bearing-down feelings," and other uterine symptoms, which she attributed to her getting up and working too soon. Three years ago her urine began to scald her. The pain, at first bearable, daily grew worse, and soon became so acute that she now empties her bladder as seldom as possible. Not long after this, a tumor began slowly to protrude more and more from the vulva. It was and still is reducible; but its reduction, which at first gave her no pain, causes her so much suffering that she has dispensed with a perineal pad, long worn to keep it within the vagina. Her condition is truly a sad one: micturition and defecation are both difficult and painful; the former exceedingly so. The urine, no longer voided in a jet, dribbles over her person and excoriates it. She straddles when walking, complains bitterly of the constant dragging weight of the tumor, and now, in the prime of life, finds herself too crippled to work; while, to add to her afflictions, both she and her eldest daughter are confirmed epileptics.

This, in brief, is the history of the case; but it leads to no diagnosis more positive than a shrewd guess. Certainty can be gained only by a careful examination of the diseased parts. As I separate the thighs, you see protruding from the vulva this large boggy tumor, shaped like a truncated cone. Its apex is evidently occupied by the vaginal portion of the cervix, which is clubbed, snout-like, and apparently much hypertrophied, but not elongated. Upon a closer inspection, this condition of the cervix seems to be owing not so much to a hyperplasia of its parenchyma, as to a thickening of its mucous investment, to the gaping open of a lacerated os, to the

turgid papillæ of the cervical canal, and to the exuberant growth of its submucous layer. There is an eversion of the lips, and a partial rolling out or ectropion of the *arbor vitæ*. It constitutes, in fact, an imperfect attempt at an inversion of the glandular portion of the cervix, in which the loose mucous lining has participated to an extent greater than that of the more resisting parenchyma.

See this opening at the apex; it is not the external os, as you may think, but a portion of the canal much higher up. Here, about an inch from it, and describing an irregular margin around it, is the os externum. Let me prove this to you. I stroke down and pull together the jagged and widely divergent lips of the os externum, and now the cervix is somewhat elongated, reduced one-half in thickness, and made to look like a bishop's mitre. The vagina is wholly inverted; whilst partly upon it and partly upon the cervix are two large ulcers, one of them covered by a croupy exudation. These, I think, are attributable to friction from her clothing, to exposure to the air, and to the action of the dribbling urine.

Permit me to digress for a moment, in order to point out to you the difference in the behavior of true and of false mucous membrane when exposed to atmospheric action. Under such circumstances, true mucous membrane—viz., that covered by conoidal epithelium—does not materially alter in structure. For instance: the lining membrane of the bladder in exstrophy; of the rectum in prolapse; of those air-tubes, the bronchia, does not become cuticular. Look at the folds and arborescent plicæ of this everted portion of the cervical canal; they are swollen and angry-looking, but not at all changed in structure. Contrast with them the squamous epithelium which lines the vagina and covers the vaginal portion of the cervix. It has become so derm-like as to resemble the pink skin of a new-born infant. There is here no sharp margin defining the limits of these two forms of mucous membrane, but the one shades into the other by transitional, or spheroidal, epithelium. It is this change of structure in the false mucous covering of the cervix that makes the dilating stage of labor so tedious in wombs that are or have

been prolapsed. In such cases, multiple incisions of the os have often been resorted to.

To determine whether the bladder is prolapsed, or whether it enters into the tumor as one of its constituents, I shall now pass in the uterine sound. As I expose the meatus, which is much sunken, a cluster of vascular growths comes into view. These are nothing more than hypertrophied mucous papillæ, and yet they are exquisitely sensitive. Their presence explains, in part, our patient's painful micturition; for, small as they are, from the irritation excited by friction and by the passage of the urine, they give intolerable anguish. These caruncles range in size from that of a millet-seed to that of a raspberry, but the suffering caused by them bears no relation whatever to the amount of growth they have attained. Mark the unusual course which the sound takes; it passes in almost vertically, with its concavity looking downward. I can feel its tip at a point half an inch from the apex of the tumor. You can now understand why, in passing her water, our patient experiences a difficulty apart from the pain caused by the presence of the vegetations. For, since a large portion of the bladder is outside of her body, the muscles of the abdomen can no longer compress it; and, further, the urethra is curved sharply around the sub-pubic ligament, and flattened against it. Clearly, then, the bladder is prolapsed, and its two walls, together with the utero-vesical fold of the peritoneum, and the inverted vagina, form the anterior half of the tumor. But what forms the posterior half? To ascertain this, I pass my index-finger into the rectum, and with my thumb push up the posterior wall of the inverted vagina. By this double touch I learn that a small pouch of the anterior wall of the rectum (a rectocele) has been diverted into the protruded mass. This explains her difficulty in defecation. Again; you know that Douglas's pouch is so closely fused to the posterior *cul-de-sac* of the vagina, that the descent of the latter necessarily involves that of the former. Hence we may unhesitatingly include this peritoneal fold among the constituents of the tumor.

Up to this point we have learned that the cervix uteri, the inverted vagina, a pouch of the bladder, a rectocele, and the two

peritoneal folds, combine to make up this large hernial mass. This much is evident; but what is it? It is clearly not the vaginal cervix unduly elongated, because it, and only it, would compose the tumor. Can it be an inversion of the womb, or a simple descent of the womb? Or are we dealing with a hypertrophic elongation of the supra-vaginal cervix? These are questions, gentlemen, which the uterine sound will readily answer. For a distance of three and a half inches it meets with no obstruction; but now there is a hitch to its further progress. It has not, however, reached the fundus, but the bend of a retroflexion: this I know from my past experience in gauging these tumors. By a little coaxing, and by raising the handle of the sound, the tip slips onward an inch and a half more before it fairly impinges upon the fundus. Five inches, therefore, is the length of the uterine cavity, as measured from the apparent apex, or false os, of the cervix to the fundus. But if to this the everted portion of the cervix, be added—as it should be, by restoring the os externum to its proper position—then the uterine cavity will, in reality, measure about six inches. The case, then, is not one of inverted uterus, else there would not be a uterine cavity. Neither is it one of simple descent, because the sound has proved not only a condition of preternatural elongation, but the fact that the fundus is high up in the pelvis. This completes our diagnosis; for, by exclusion as well as by direct evidence, it is as clear as noon that we have before us a case of so-called "*prolapse of the womb from hypertrophic elongation of the supra-vaginal portion of the cervix.*"

Every departure from health, every manifestation of disease, is the product of a train of influences which it is the business of science to track out. Let us try to unfold their significance in this case, beset though it is with so many difficulties that I have postponed its discussion to this, the last week of the spring course, in order that all of you might be sufficiently advanced to catch the drift of argument. Four theories have been advanced,—and I now bespeak your earnest attention,—four interpretations of the phenomena, which at first blush seem hopelessly irreconcilable, and which yet have much in common. These theories are as follows:

(a) That the primary affection is a downward growth, a true hypertrophic elongation of the supra-vaginal portion of the cervix; and that the prolapse of the vagina and bladder is secondary, being the necessary result of the former. (b) That there are no changes of structure in the cervix, other than the strictly mechanical one of elongation, which is a secondary accident, consequent upon the traction exerted by a primary prolapse of the vagina and bladder. (c) Martin's\*—that the circular hypertrophy of the vaginal portion of the cervix, of which the eversion of the os is the result, is a disease *sui generis*; and that it constitutes the weight which lengthens out the supra-vaginal cervix. (d) Isaac E. Taylor's†—that, contrary to the commonly accepted belief, the glandular portion of the cervix during gestation is not effaced, but hypertrophied, and that even after labor it still exists; for it has undergone nothing more than a momentary expansion of its canal for the passage of the fœtus; that consequently, if the natural process of involution does not take place, the gravity of this hypertrophied cervix will aid and sustain the elongation of the non-glandular part of the supra-vaginal cervix, viz., the isthmus, which is thick, soft, and ductile, in the non-involuted womb.

Now, to my thinking, each one of these theories contains germs of truth, but no single one is of itself adequate to explain all the phenomena. For instance, granting that the disease is a true hypertrophic elongation; then, according as the suspensory ligaments of the womb are more or less yielding than its vesical and vaginal abutments, one of two things ought to happen: either the cervix must grow downward, carrying along with it the bladder and vagina, or else the cervix must grow upward, lifting the body of the womb higher and higher in the cavity of the abdomen. But the upward form of displacement never happens, to my knowledge, in this affection. Again, in this affection the upper portion of the cervix is cylindrical and of uniform size, but attenuated, as if wire-drawn, rather than

\* *Boston Gynecological Journal*, 1871, pp. 230. 307.

† *Bellevue and Charity Hospital Reports*, 1869.

hypertrophied. By firmly compressing the base of the tumor, I can feel and trace high up a firm cord-like body not thicker than my little finger. That such a shape cannot be attributed to growth alone, witness the bulbous and nodulated form of the vaginal cervix in cases of chronic cervical metritis. But growth combined with traction will produce this cord-like and symmetrical form. In Oriental countries, for example, where fancy prices are paid for jasmine pipe-stems eight and ten feet in length, the wood is made straight and of uniform size throughout by reeving a pulley and fastening one end of the cord to a growing shoot, and the other to a weight. Further, counter to the theory of growth alone is the telling fact that after a few days of rest in bed the uterine cavity will be found very much shortened. True hypertrophy implies a change of structure incapable of speedy resolution; even with the actual and potential cauteries, it takes months to melt down a cervix enlarged by metritis. Hence this quick reduction in length is a behavior impossible in hypertrophic elongation. Once more, the so-called supra-vaginal portion in this patient is dense and hard, whilst the infra-vaginal portion is soft and spongy, as if its substance had been absorbed. The former is stem-like, the latter clubbed. There are extremely few cases—according to Huguier and Savage there are none—in which the two kinds of hypertrophic elongation coexist in the same cervix. The elongation is in fact limited either to the supra- or to the infra-vaginal portion; very rarely indeed does it affect both portions of the same cervix. Such an exclusiveness does not comport with the theory of hypertrophy; for how thereby explain this lack of concord in the behavior of two portions of one continuous structure? Is it reasonable to suppose that a merely superficial muscular collar, such as the vaginal attachment, can act like a conjurer's ring, and, by a sort of magic, forbid deeply-seated tissue-changes on one side of it from passing through to the other? Rather than be embarrassed by this difficulty, I much prefer to apply the aphorism of the schoolmen—*quod non habet, dare non potest*, a cause cannot communicate what it does not itself possess—and consequently that the elongation, if supra-

vaginal, is not communicable, because it is not essentially hypertrophic. I say *essentially*, because I am willing to concede some degree of growth, not primary but secondary, caused by the irritation of another factor—traction—and by the stasis in the circulation induced by it.

If these arguments are sound, we must reject this theory. Nor should that of Martin's, if taken by itself, fare any better; for, if the weight caused by circular hypertrophy of the vaginal portion can lengthen out the supra-vaginal portion, why cannot the same effect be produced by the far heavier weight of a cervix elongated in its infra-vaginal portion, of a cervix greatly hypertrophied eccentrically by chronic metritis, or of a large polypus or a cancer of the cervix? Dr. Isaac E. Taylor—to whom the profession is greatly indebted for first showing that the cervix uteri is not effaced either by gestation or by parturition—has advanced an ingenious theory, which hinges upon this stability of the cervix, and has the great merit of consistency. His testimony regarding the autopsic lesions of this disease shows conclusively, if I understand him correctly, that the elongation does not affect the glandular portion of the cervix, but that portion of the womb just above the os internum, at the junction of the body with the neck. In other words, it is the supra-glandular portion of the cervix—the isthmus—which is drawn out from the corpus, and that at the expense of its thickness. Other observers have demonstrated that the glandular portion is hypertrophied circularly, not longitudinally; and this statement is further confirmed by the two important facts—first, that the internal os, so far from being separated more widely from the external os, is, by eversion of the cervical canal, often brought nearer to it; and, secondly, that the vesico-uterine peritoneal fold, instead of receding from the end of the tumor, approaches it so closely as to run some risk in the operation for its amputation. Granting, then, these premises, I think we are logically forced to admit, in the non-involuted uterus, not only the ductility of its isthmus and corpus, but also the gravity of its hypertrophied cervix. I shall, therefore, invite you to accept Dr. Taylor's theory; not, however, as one covering the whole

causation of this affection, but as one throwing additional light upon it.

Of the four theories presented to you, let us now provisionally adopt the second one—that of primary prolapse of the vagina and bladder—in order to see how far it meets the phenomena. I speak and shall speak of the conjoint prolapse of the vagina and bladder, because from the fusion of the anterior wall of the vagina to the base of the bladder, a prolapse of the one must be accompanied by that of the other; and, therefore, in the study of the mechanism of elongation, it is immaterial to us which of these organs is the first to prolapse. Should, then, the vagina and bladder prolapse, they plainly must conspire either to drag down the womb as a whole, constituting a simple prolapse, or descent of the womb; or else, in case the uterine ligaments resist this traction, to pull upon and stretch out the isthmus and lower portion of the corpus—viz., that portion of the womb with but few muscular fibres, lying between the vesico-vaginal attachment below, and the uterine ligaments—or, perhaps, pelvic adhesions—above.

Now, in fact, this very thing happens in this affection. The elongation is limited to that portion of the cervix and corpus just above the os internum, which would be dragged upon; and does not extend to the glandular portion, which would not be dragged upon, and which, therefore, could not increase in length, save only by growth. That the healthy womb is a somewhat ductile body, capable of extension without growth or change of structure, is proved by its behavior under steady traction. Thus, when adherent to the wall of a growing ovarian cyst, it has been found stretched out to a length of six or more inches. I have seen the same thing happen to a womb firmly bound to the cyst of a ventral fœtation; and this is a happier illustration, because the womb is always so jealous of an extra-uterine pregnancy as to form a decidual membrane, and to present such characteristics of post-partum sub-involution as congestion, softening and ductility. In these cases the elongation is analogous to that predicated of a prolapse of the vagina and bladder, but in an opposite direction—from below

upward—the static, or resistant, force being now in the vesico-vaginal attachments; the dynamic, or active, force in the adhesions to a growing cyst.

Thus far this theory of traction has analogy and the autopsic lesions on its side. It also has the further merit of explaining how a few days' rest will bring about so marked a diminution in the length of the womb. Thus, the recumbent posture removes the weight of the prolapsed organs, and the womb shrinks up like an over-stretched rubber band. It may, however, be reasonably objected, that since neither the weight of a very large polypus growing from the cervix, nor that of a vaginal cervix hypertrophied circularly or longitudinally, does materially lengthen out the supra-glandular cervix, it does not seem plausible that the lesser weight of the prolapsed vagina and bladder should effect that which greater weights fail to do. This objection can be met by assuming that, either through chronic congestion or through arrest of post-partum involution, the womb is thick, soft, and ductile,—conditions which of themselves would tend to make the gravity of the cervix act upon the plasticity of its intermediate portion. For instance,—to borrow a homely illustration from our candy-pulling days,—if a rope of molasses candy be held out at arm's length, the weight of its free extremity will draw out and thin out that portion just below the grasp of the hand. To sum up, then: the predisposition to this disease depends upon a tendency to cystocele or to vaginocoele; the receptivity, upon the coexistence of sub-involution or of its analogues.

The conjunction of the theory of *traction* with that of *ductility*—traction from the prolapsing vagina and bladder; ductility from a chronic congestion of the womb—thus offers a very reasonable explanation of the phenomenon of uterine elongation. It also accounts for the eversion of the lips of the os externum and for the circular hypertrophy of the glandular portion of the cervix. By the attenuation of the mechanically elongated part, and by the constant dragging of the vagina and bladder upon their belt of attachment, the veins of this presumed non-involute or otherwise softened structure—and more especially the

veins below the os internum—are unduly constricted, and their circulation is, therefore, rendered sluggish. Through the stasis thus induced, the whole cervix, but principally its glandular portion, gains an excess of nutrition. The papillæ and capillary loops of the arbor vitæ become turgid; the sub-mucous layer of the cervical canal grows exuberantly from within outwards, and by rolling out makes the flaccid lips of the os gape open. By the tertiary accidents of friction against the sacrum, of exposure to atmospheric action, and of irritation from the dribbling urine, the mucous coat of the cervix becomes thickened and changed in structure. Thus is brought about that circular hypertrophy which intensifies all the other symptoms.

It is a vicious circle throughout: the prolapsing organ—say the vagina—tugs at the bladder, which yields, and in turn lends its weight towards the further descent of the former; by alternately coercing and being coerced, their united action at last begets the circular hypertrophy of the cervix; the latter returns the favor by edging and nudging on the vagina, which responds by still more increasing the prolapse of the bladder and the hypertrophy of the cervix, and by aiding them in drawing out the supra-glandular portion of the cervix. Thus this reciproca-tion is kept up until the constantly elongating and growing cervix has attained length and weight enough to act aggressively. Aided now by the downward succussions communicated to it by the movements of the body, it completes the work by wholly inverting the vagina. The resistance of the vaginal tube to this final extrusion, being spent upon its cervical attachment, pulls the already gaping lips of the os still more apart, makes the cervical canal funnel-shaped, and sometimes everts it so completely as to convert the internal os into an external one.

From this point of view, the condition of the cervix in any given case of prolapse determines the nature of the disturbing cause. If the uterine cavity is barely or not at all lengthened out, as in the simple descent of the womb, we may infer that the prolapse of the womb has been the initial event. If, however, marked elongation of the cervix is present, then the vagina and bladder have been the primarily prolapsed organs.

Thus defined, the latter affection is essentially a prolapse of the vagina and bladder, and not of the womb; whereas the former is as essentially a prolapse of the womb. I beg you, however, not to regard this interpretation as final or authoritative. Pressed to the quick it may show flaws, and I therefore invite you to accept it simply as one more flexible than any other yet advanced. The truth is perhaps not yet reached, for nature transgresses by anonymous agents, whose ways are often past finding out.

We must now put our theories to test, in order to see whether they can be clinically sustained. Like our former patient, this one has also reached that period of life when senile atrophy of the reproductive organs begins to take place. The vagina, having lost its pelvic packing of fat, tends to sag down. This tendency is urged on by her occupation as a laundress, which compels the erect posture and much lifting of heavy weights. In one of her numerous confinements the perineum has sustained injury. The rent has not only deprived the vagina of its chief abutment, but has also straightened out and shortened its natural curve, making its axis coincide very nearly with that of the superior strait. The anterior wall of the vagina, being now unsupported, began to bulge downward. During gestation the vagina and the womb become hypertrophied, and after labor undergo the same process of involution. After the birth of her last child this process was arrested, and these organs remained hypertrophied and with impaired tonicity on account of the laceration of the cervix and of the perineum. Such a condition would of itself tend to promote a descent of the vagina; for, indeed, in the last months of gestation a prolapse of its anterior wall is by no means an uncommon event. Again, the vascular growths at the meatus urethræ gave so much anguish that she schooled herself into the habit of holding her water as long as possible, and consequently—for the latter act implies the performance of the former—of putting off the evacuation of her bowels. Of course, then, the over-distended bladder and the overloaded rectum, by pouching in the vagina posteriorly and anteriorly,

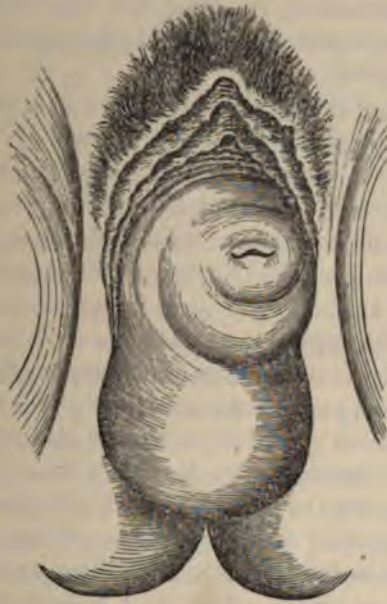
would materially aid in the dragging down of this already prolapsing canal.

From the first, her bladder has kept pace with the vagina in its descent, until its base is now far below the level of its neck, and the pouch thus formed cannot be wholly emptied. In many cases, from the decomposition of the retained urine, cystitis is excited; even calculi are sometimes formed. Occasionally the neck of the pouch gets tightly jammed under the pubic arch; then the orifices of the ureters may become so obstructed as to bring about a dilatation of the ureters or a hydronephrosis. Fortunately, not one of these accidents has happened to this woman, but, of course, the gravity of the urine contained in this pouch has helped to pull down more of the bladder, and still more of the vagina as well; for these arch-conspirators abet one another. The changes previously detailed have all along been taking place in the intermediate part of her womb, and in the glandular portion of her cervix, until you now see how long and stem-like the former has become, and how much the latter has come to look like the snout of a pig. This resemblance is heightened by an ununited transverse fissure of the cervix, resulting from one of her labors, which exaggerates the eversion of the os.

I told you that the final weight and length of the cervix, aided by the jars of the body, completely invert the vagina, which then pulls the gaping lips of the os widely open. Here are my vouchers: As I push the tumor back into the vagina, the eversion becomes less and less; and now, as I force it out by supra-pubic pressure, the eversion is exactly proportioned to the extent of extrusion. Again, the gravity and prolongation of the cervix, aided by the final descent of the womb as a whole, have smoothed out the rugæ of the posterior vaginal wall into mere water-lines. This could not happen from the weight of the vagina alone; nor, in my experience, does it happen in the simple prolapse of the womb, however complete it may be. Finally, this mechanism of descent explains a remarkable uniformity in the length of the uterus in all those cases of elongation in which the womb itself partly descends and the cervix

appears outside of the body. Then usually the sound indicates a length of five inches or thereabouts—a limit attributable to the resistance to any further elongation and descent by the anterior wall of the vagina, which measures about two and a half inches in length. This great length of the uterus, by the way, furnishes a good reason for the pain felt by our patient when she reduces the tumor. For, since the fundus is not very much below its proper position, the return of the tumor—necessarily

FIG. 58.



involving that of the cervix—can be effected only at the expense of either an undue stretching upwards of the suspensory ligaments of the womb, or of a forcible bending or retroflexion of the elongated cervix.

You must not, however, infer that in all cases of this affection the fundus will be found so high up in the pelvis as it is in our patient. On the contrary, in the majority of old cases, you will find it very much lower down than it would be in health. Occasionally you will meet with a case in which the elongated and

heavy womb has finally overcome the resistance of its ligaments. It will then be found in a state of retroflexion, wholly outside of the body and contained in the vaginal sac. By palpation and the uterine sound, such a complete prolapse is easily recognizable. Even to the eye there are presented certain unmistakable marks. For the tumor is then of large size, and, as you will be able to understand from this figure, which I have borrowed from Dr. Taylor's admirable paper, the bulge of the retroflexed fundus makes the posterior vaginal wall hang down below the snout-shaped apex like a dewlap. Nor, on the other hand, is it rare to see cases in which the fundus has apparently not budged from its normal site.

This affection of the cervix is restricted as a rule to the laboring classes, and especially to those women, such as cooks and laundresses, whose work compels them to stand much on their feet and to lift heavy weights at a disadvantage. It and a host of other uterine disorders have very lately been attributed to an alleged excitation provoked by the treadle motion of the sewing machine. I do not believe this; to the pure all things are pure, whilst even in the impure the wearisome movements of a laborious trade could hardly awaken, much less content, any sexual solicitation. True, professional operators on the sewing-machine are liable to uterine disorders, but, as a class, so are all seamstresses. Their susceptibility is not, however, traceable to a prurient source, but to the combined effects of bad air, bad food, over-work, close confinement, the sitting posture, and of such accessories as tend directly or indirectly to determine pelvic or portal congestions. Nor do I believe that onanism, in any form whatever, plays an important part in the production of this disease; for all the examples of it that I have seen have occurred in married women with large families.

Granting, then, that this elongation arises in the main from traction, and not primarily from any constructive energy inherent in the cervix; what are our resources for its cure? Could I put this woman to bed for a few weeks, and thus relieve the cervix from its own dead weight and from that of the vagina and bladder, it would shrink back very materially, but not to

the standard length of the healthy womb. It would act, as I have before said, precisely like an over-stretched rubber band. I might then adjust some suitable pessary which would keep the prolapsing organs in their proper positions. Unfortunately, the poverty of this class of patients renders such a treatment inadmissible. At best, the womb is too ductile, the vagina and perineum too lax, even when contracted by appropriate operations, to render this treatment other than tedious and unsatisfactory.

The desideratum here is something that can furnish a support to the unstable pelvic organs, and, at the same time, consolidate the ductile womb by giving a fillip to the now dormant process of involution. The womb may sometimes, in cases of no great hypertrophy, be reduced in size by merely restoring the cervix, which is usually lacerated. But this operation is not always to be depended upon, and the indications are, in my experience, best met by the amputation of the vaginal portion of the cervix, and by the restoration of the perineum whenever torn or functionally impaired. From a misconception of the nature of this disorder, Huguier recommends an unnecessarily severe and dangerous operation, by which the whole vaginal portion is removed, and with it a conical core of the supra-vaginal portion. You will naturally ask, "How can the removal of an infra-vaginal slice cure a supra-glandular elongation measuring three or four inches?" I shall reply, first, by two illustrations: After the ablation of a uterine polypus, its pedicle, however long and broad, will disappear; an elongation of the uvula is curable by snipping off merely its tip. In the second place, the hemorrhage during the operation, by depleting the womb, causes shrinkage; the rest in bed furthers this contraction; whilst the prolonged suppuration necessary for the repair of the wound, sets up so alternative an action as will carry out the process of shortening, and finally consolidate the whole uterine body. Once more, this operation lessens the weight of the cervix, and establishes a retrogressive metamorphosis of the sub-involutud vagina and of its thickened mucous investment, giving, thereby, tonicity and stability to those parts.

One danger attaching to this operation is that of hemorrhage, but with care this can be avoided. Such accidents as peri- and para-metritis, tetanus, and septicæmia, will occasionally happen, but not with a frequency greater than in any other surgical operations upon the cervix. To avoid the loss of blood, and to obtain a deeply granulating wound, the amputation is usually made with the chain- or wire-*écraseur*, or by the galvano-caustic loop. But, whatever the instrument, the operation is always attended with the risk of invading the bladder, and especially the retro-uterine pouch. Hence, I should advise you, whenever you can closely watch your patient, to use the knife or the scissors. For, thereby, not only can you remove with greater safety a larger slice of the cervix, but also can, in case of this accident, bring together, by metallic sutures, the cleanly-cut edges of the vesical or the peritoneal wound; whereas no union would be likely to take place were the edges crushed by the *écraseur* or seared by the galvano-cautery. This mishap has happened to the most skilful operators; but, if every case has been reported, no great fatality attends it. Whenever amputation with a cutting instrument is resorted to, it will be safer first to transfix the cervix, as high up as prudent, with a long straight needle; then to place above this, as a tourniquet, the loop of an *écraseur*, and, finally, to slice off all that portion of the cervix on its distal side, making the incision between it and the needle. You will then close the wound with deep stitches by Hegar's operation (Figs. 54 and 56).

I have described this operation somewhat fully, because, although it offers several advantages, I shall not perform it this morning, but shall use the wire-*écraseur*. My reasons for this seeming inconsistency are, that the excessive heat of the weather forbids the use of the tampon except as a sheer necessity, and that I shall not to-day be within call should a secondary hemorrhage take place. After placing our patient in the lithotomy position, I first catch up with the forceps the cluster of vegetations dangling from the meatus of the urethra, and snip off its base with the scissors. To prevent its otherwise sure return, I rub the raw surface with the frayed end of a match moistened

with fuming nitric acid, and with a little olive oil decompose any excess of the acid. I next draw off the urine, and at the same time measure, with the catheter, the depth of the vesical pouch, and also sound the bladder for stone. In order to make myself easy on the score of wounding the bladder, I shall explore that organ with my finger. By gently opening the blades of a dressing-forceps in the urethra, I have, in a few minutes' time, so dilated this short and elastic canal that it will now permit me to coax in my little finger. Note how low its tip reaches—certainly not more than half an inch from the apex of the everted cervix. So far, good! We have accurately defined the lower boundary-line of the bladder; but very unfortunately there are no diagnostic criteria for ascertaining the depth of the retro-uterine fold. Usually, this fold does not descend so low as the pouch of the bladder; but this rule is not invariable, and the peritoneal cavity will occasionally be opened in spite of the greatest care. Last year, while amputating the cervix of a very delicate lady with the hot wire, I burnt in this peritoneal fold a hole large enough to admit a silver quarter. No other bad symptoms arose than a slight febrile movement, which lasted two days. Guided by the tip of my little finger inside of the bladder, I now transfix the cervix antero-posteriorly by a sharply pointed skewer, entering it just below the lower margin of the bladder, and slanting it upward and backward so that its point may emerge somewhat higher up on the opposite side. The bladder is, therefore, safe, whilst the pouch of the rectum is so small, and so far from the course of the skewer, as also to be out of harm's way. Could this be affirmed as positively of the peritoneal fold, the operation of itself would be performed without any misgivings; but, with regard to that, much must be left to chance. It remains now to adjust the wire loop of the *écraseur*, and this is done by slipping it over the cervix and close up to the distal side of the skewer. I give a few turns of the screw; and now see how bloodlessly the whole vaginal portion of the cervix has been amputated.

Some of you may perhaps wonder why the *écraseur* was not used without the skewer. There is a good reason for this:

Whenever the wire or the chain of an *écraseur* begins to bite into living flesh, it tends not only to slip in the direction of least resistance, but also to drag into its loop the more relaxed tissues of that side. Now, since the vaginal portion of the cervix is clubbed and tuberos, the direction of least resistance and the looser tissues lie above the surgical neck. Hence, unless guarded by the skewer, the loop might slip upwards and pinch off a piece of the bladder or of the peritoneum. Sometimes, instead of using the skewer, I cut a groove through the tough mucous coat of the cervix, and lodge the wire in it. This is the best plan whenever the tissues are redundant and there is plenty of room, because the wire then cuts more cleanly and is not so liable to snap.

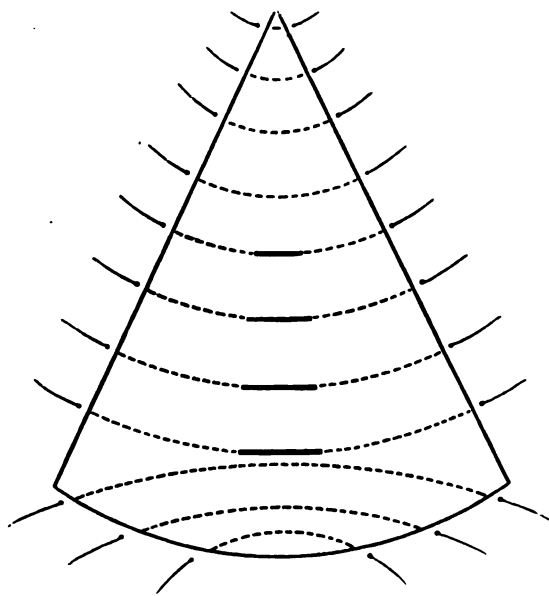
I shall now slide over the wound the adjacent mucous membrane, and unite it by three or four stitches, leaving space enough for the os uteri. More or less union will then take place, and the healing process will be hastened. This cannot be done when the hot wire is used, because the mucous membrane is then sealed to the tissues beneath.

Our patient will now be put to bed, where she must stay for at least two weeks. Should secondary hemorrhage take place—which is improbable—I shall be forced either to inject hot water, or to plug up the vagina. As soon as pus begins to form, the vagina will be washed out several times a day with carbolyzed injections. If left to itself, the wound will not cicatrize under four weeks; but the healing process can be hastened by an occasional touch with the nitrate of silver.

This operation will result in our patient's cure, so far as the elongation of the cervix is concerned,—that is to say, after the lapse of five or six weeks her uterine cavity will not measure over three inches in length. But it may not prevent more or less prolapse of the relaxed vagina and bladder, and another operation will be needed to repair the torn perineum. Some surgeons advise in every case an operation either for contracting the vaginal canal or for narrowing its outlet; but this is by no means necessary. Whenever the fundus has barely sagged down, I believe that, whatever the degree of cervical elongation,

the removal of the vaginal portion will alone effect a cure in the majority of cases. For the same stays which have hitherto sustained the fundus will afterwards, through the medium of the now contracted and consolidated cervix, sustain also the vagina and bladder. On the other hand, whenever the fundus is found to be displaced to any marked degree, then, in addition to the amputation of the cervix, it will be necessary to lengthen the perineum and at the same time narrow the outlet by the operation of episio-perineorrhaphy.

FIG. 59.



TRIANGULAR DISSECTION OF THE VAGINA, WITH THE MANNER OF INTRODUCING THE SUTURES. (FROM HEGAR.)

In repeated operations under such circumstances, I have not yet met with a single failure. But, when the hypertrophied womb is wholly extruded, as in Fig. 58, the issue is not so happy a one. Gynecologists have in vain racked their brains to devise some permanently successful operation. I have best succeeded by first taking off a slice of the cervix so as to bring

about involution, then, following Hegar's plan, by narrowing the vagina by the removal of a V-shaped piece of mucous membrane from the posterior vaginal wall. The apex should start from near the cervix, and the base end at the vulva, which it includes, as in the operation for ruptured perineum. As you can see from this diagram (Fig. 59), the four upper and the three lower stitches are buried in the tissues by one sweep of the needle; but the intermediate ones emerge in the middle line of the wound, so as partly to cross it. This operation narrows the vagina, makes a firm floor to the pelvis, and leaves a rod of cicatricial tissue which splints the posterior vaginal wall.

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## LESSON XVI.

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### *Laceration of the Cervix Uteri.*

THE cervix uteri often gives way during labor, far more frequently than it ought, far more frequently, indeed, than it would, were nature oftener allowed to take the lead. In these busy days there is unfortunately a tendency to urge on labor, more, I fear, for the sake of the physician than for that of his patient. The means used for this purpose are, the early rupture of the membranes, the administration of ergot, the resort to the forceps before the os uteri has become dilatable, and the efforts made to push up the thinned-out cervix over the presenting part. Now these means hasten the passage of the head through the os uteri, and consequently they are fraught with danger to the integrity of the cervix. Among them the early breaking of the bag of waters takes rank, for it is far more frequently resorted to than any other mode of quickening labor.

To show how common this practice has of late become, let me give some instances: At a meeting of one of the branch societies of the British Medical Association, a member stated\* that "he was in the habit of rupturing the membranes as soon as he arrived in every case of labor, and found this very useful." Another remarked "that at one time he thought the membranes were of some use, but he did not now believe it." Yet each of these statements was allowed to pass unchallenged. Again, a late writer,† in giving an analysis of eight hundred cases of labor, says: "I have never found any ill effects from rupturing the membranes when the os is the size of a shilling, but find

\**British Medical Journal*, January 5, 1878, p. 17.

†*London Lancet*, October 20, 1877, p. 569.

that the child's head is a better wedge than the bag of liquor amnii. I am further convinced that much assistance can be rendered by the accoucheur gently dilating the os uteri with the finger during a pain, after the rupture of the membranes." Instead of sharply criticising this unsound practice, a leader\* in one of the most influential British medical journals, to my surprise, warmly upheld it. "Dr. Matthews Duncan," it adds, "in his book on the 'Mechanism of Natural and Morbid Parturition,' has given experiments which go to show that the pressure necessary to rupture the membranes is about as great as that required to expel the child. It seems reasonable to suppose that if less force is expended in rupturing the membranes, there will be more in reserve to expel the child." Now all this I cheerfully grant, and if the chief end of the obstetrician be to deliver his patient *quickly*, the early rupture of the bag of waters is a means to the end. But if his chief end is to deliver his patient *safely*, then he must, other things being equal, let the membranes alone until the os has fully opened. And this advice holds with greater force in first labors, in which such rents of the cervix uteri far more frequently take place.

This lesion may happen at any point in the rim of the os uteri, but when single the site of the fissure is usually on the side towards which the vertex presented, and it is therefore more often found on the left verge. When the rent is a double one, the cleft, according to my observation, usually runs across the cervix from left to right, splitting it into a fore-lip and a hind-lip.

Apart from bleeding, no immediate symptoms attend this lesion. The cervix is so lengthened out, bruised, and swollen by the passage of the child, and hangs down from the vaginal roof so limp, that a rent in its rim is not easily discoverable directly after labor. Such a lesion may, however, be suspected whenever an oozing, or even a flooding, keeps on, notwithstanding the womb is firmly contracted and the perineum uninjured. I have seen an alarming flooding happen from this cause, but

\**London Lancet*, November 3, 1877, p. 662.

this is rare, because, although the rent may extend beyond the line of junction with the vaginal roof, the utero-cervical artery, or circumflex branch of the uterine artery, from its own elasticity and from its loose connections with the parts, will usually stretch, and thus escape being torn across.

The behavior of such a rent depends largely upon its site. If it be in the fore-lip or in the hind-lip of the cervix, or even if it cleave the cervix in two through the conjugate diameter, it will very generally heal up, and by the first intention. This fortunate result happens, because the greatest play of the womb being forward and backward, the fissure-line coincides with the line of the greatest uterine mobility. The lips of the wound, therefore, do not spread apart, but are kept together by the elastic compression of the vaginal walls. When, however, the rent is lateral, or it cleaves the cervix transversely, the fissure-line no longer coincides with the axis of motion, but crosses it. Also, in the up and down play of the womb, the hind-lip is liable to hitch on the sacrum and be forced away from its fellow. Hence these two sets of uterine movements tend to separate the flaps and keep the wound from healing.

When immediate union takes place, nothing untoward happens besides the primary symptom of bleeding. But if the wound is a deep one, and slow to heal up, or it gapes open and fails to close, symptoms of perimetritis, or of parametritis, are, in my experience, pretty sure to show themselves. On the third or the fourth day the woman will complain of pain in that broad ligament, which corresponds to the torn side of the cervix. This pain is often ushered in by a chill. Occasionally, if the rent be a double one, after the inflammation has subsided on one side, it will take a fresh start on the other. The pulse keeps up and the body-heat runs high. Sometimes pain will be absent, and the inflammatory symptoms latent, yet the convalescence will be slow, unaccountably so unless firm pressure be made in each iliac fossa, when the woman will flinch.

By retarding the process of involution, such inflammations keep the womb bulky, make the lochia too abundant, and delay the convalescence. If the rent heals up, the woman's health

will in time become re-established; but should no union take place, she will never be the same woman that she was before her labor. When she leaves her bed she may complain of a sense of weight in the pelvic regions, of backache, of a constant tired feeling, of loss of sexual desire, of pain during coition, or of a show following it. Her linen will be stained and stiffened by an abundant leucorrhœal discharge. The menses will be profuse, and the intervals between them shorter. ●

In time the nervous system will become deranged. The woman loses sleep, and gets to be a complaining and an hysterical creature—perhaps, indeed, a confirmed invalid. Sometimes lactation, by keeping the menses in check, and by its derivative action on the blood circulating in the womb, will stave off these symptoms. But as soon as the child is weaned, or the menses reappear, the woman will begin to complain.

Here I bring before you a case in point. This woman was delivered instrumentally of her first child some four years ago, and has ever since complained of such symptoms as I have just given you—the symptoms arising from a womb arrested in its involution. Two years ago, and again last year, she miscarried when two months gone. These mishaps seemed to add fuel to the flame, and she became much worse. She is now weak and miserable, sleeps and eats badly, is never without some ache, is low-spirited and hysterical, and altogether in a pitiable condition.

Now, what has happened to produce all these troubles? As I expose the cervix, those of you near by can see apparently a blood-red erosion around the *os uteri*. But it is not an erosion; in her first labor her cervix was split open bilaterally up to the vaginal junction, as is represented in this diagram (Fig. 60), and the rent has never healed up. The flaps of the wound have spread apart and curled over like a split celery-top, exposing the cervical canal. Chafed by constant attrition on the posterior vaginal wall, the now unshielded lining membrane of this canal began to shed its epithelium faster than it could be replaced, and became raw. Involution was arrested, and the heavy womb, having lost its vaginal prop, sagged down. Then,

losing its angle of attachment to the vagina, it came to lie more like the stopper of a bottle—that is, more in the axis of the vagina. The male organ now impinged, not as before on the

FIG. 60.



CERVIX TORN BILATERALLY UP TO VAGINAL JUNCTION.

side of the cervix, or below it, but directly into the split and gaping os uteri, robbing it of its basement membrane and epithelium. The countless loops of nervelets and blood-vessels which form the villi are thus left naked. Their exposure begets an irritation which attracts an undue flux of blood to the cervix. The swollen mucous crypts and submucous tissues of the cervical canal have pushed out before them the lining membrane, which thus becomes everted like the conjunctiva in ectropion. The constant fretting of the unprotected nerve-filaments excites local or reflex pains. Or perhaps, nature having tried her hand at a tardy cure, a nerve imprisoned in a dense mass of cicatricial tissue is unduly pinched, and its outcries aid in keeping up the mischief. See how tenacious is the discharge; I can draw it out in strings very nearly a yard long.

That this lesion is frequent, and that it is an important factor in the production of uterine disorders, witness the testimony of various writers. Dr. P. F. Mundé, who has written an admirable paper on the subject, illustrated by life-like chromo-lithographs, states that of those women applying to him for treatment, 17 per cent. exhibit lacerations of the cervix.\* Dr. H. T.

\* *American Journal of Obstetrics*, January, 1879, p. 132.

Hanks puts the average at 8.4 per cent.; Dr. Montrose A. Pallen "at fully 40 per cent."\* Dr. W. H. Baker, at 10 per cent.† My own experience at the Dispensary for the Diseases of Women at the University of Pennsylvania would lead me to infer that about one out of every six women suffering from uterine trouble has an ununited laceration of the cervix. As another evidence of its frequency, I may add that I have operated for this lesion eighteen times within the last twelve months.

I have often seen profuse menorrhagia, stubborn leucorrhœa, cervical and corporeal hyperplasia, chronic ovaritis, and every kind of prolapse of the womb, starting from such a rent. I have now in charge a woman who at her first labor—an instrumental one—met with a double laceration of the cervix. As it did not heal up, her convalescence was a tedious one, and she never got back her former good health. In her second pregnancy, when she first came under my care, the chafed and torn cervix began to swell and grow until it projected beyond the vulva. The pain and distress from this condition kept her on her back during the last month of gestation. Finally, in her labor, I had the novel experience of releasing the head from the grasp of the cervix, long after it had passed out of the vulva. After the birth of the child I was able to pull out the bruised and angry-looking cervix to a length of fully four inches outside of her body. As my advice for an operation was unheeded, she is now bed-ridden from a third pregnancy. The swollen and purple cervix protrudes at least two inches from her person, and shows a deep jagged notch on each side.

Now, although this woman conceived twice, yet this lesion is so common a cause of sterility, that I always suspect its existence whenever a guileless woman stops bearing after her first labor. The sterility is due partly of course to the disorders, the flexions, and dislocations of the womb, which, as I have shown, follow such an injury. But it is due also to the acridity of the discharges, which kills the spermatozoa, or to the viscous plug of mucus which often closes the remnant of the cervical

\**New York Medical Record*, 1876, p. 823.

†*Boston Medical and Surgical Journal*, Sept. 20, 1877.

canal. Again, the deep notches in the cervix hinder that suction action of the womb during the sexual orgasm—just as the split nozzle of a syringe cannot suck up a thin stratum of fluid. Further, the cervical canal, denuded of its epithelium, presents such a barrier to the migration of the spermatozoa, as a desert to the advance of an army.

But these are not the only evils following such an injury. The weakened retentive power of the cervix often leads, as in our patient, to repeated miscarriages. This I have known to happen over and over again. Often have I been obliged to puncture or to cross-hatch a brood of retention cysts which aided in the eversion of the mucous lining. Once I removed a sessile polypus as large as a pigeon's egg, which grew out of a cluster of exposed Nabothian glands. Further, I feel very sure that many an epithelial cancer of the cervix starts from such a constantly chafed and fretted surface. For, in my experience, a cancer of even a movable womb, with a ragged notch on one side of the cervix apparently eaten down to the vaginal junction, is no uncommon event.

The diagnosis of such lacerations is by no means so easy as you would *à priori* suppose. There exists, indeed, no visible and tangible lesion of the body in which errors in diagnosis are so frequently made, as in this. It is often mistaken for cancer, but far more frequently for granular erosion—the so-called ulceration—of the cervix. When the flaps skin over without uniting, as they sometimes do, there can be little or no difficulty in the way of recognizing the nature of the lesion. The finger will then feel the fissure, and the eye see through the speculum a cervix, notched like a bishop's mitre when the slit evenly divides it, or gaping open like a shark's mouth when the slit unevenly divides it. But, when the epithelium has long been shed; when the abraded surface is studded with enlarged follicles which feel like shot, or is roughened by red and angry-looking papillæ; when the cervix has increased in bulk, and each lip has curled over like the ends of a split celery-top, or like a mushroom—the nature of the local trouble is very likely to be misunderstood.

The pouting out of the mucous lining of the canal, and the curling over of the split lips, so efface the original fissure, that often it cannot be felt by the touch, or seen by the eye. If a cylindrical speculum or an ordinary bivalve one be used, the convex surface of the cervix will be still more flattened out, and all traces of a fissure be so obliterated that the red, raw, and angry-looking papillæ of the everted mucous lining of the cervical canal will be inevitably mistaken for erosion, that is to say, for what is commonly called an ulceration, of the womb (Fig. 61). This illusion is so perfect, that I do not suppose that there

FIG. 61.



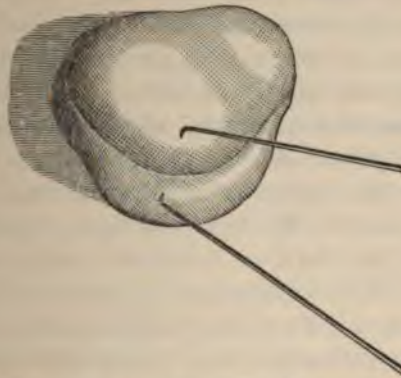
EVERTED MUCOUS LINING OF THE TORN CERVICAL CANAL LOOKING LIKE AN EROSION.

is a physician who has not made this mistake. I will go further, and venture to say that there is not a physician who, if he confines himself to the use of a cylindrical speculum, is not now treating some case of cervical laceration for supposed "ulceration." My own past mistakes in this direction embolden me to make these assertions. Sometimes, on the other hand, the cylindrical speculum will so close the torn lips as to conceal both the fissure and the patch of erosion. When the bivalve speculum is used, the liability to error is not so great, but even with it mistakes are constantly being made. Not unfrequently, when the naked and everted cervical canal is unusually angry-looking, bleeding at the slightest touch, and perhaps fringed

with cock's-comb granulations, epithelial cancer is suspected, and an unfavorable prognosis given.

What then are the means for diagnosis? If any one of you should ever have in his practice a case of stubborn erosion of the cervix, secreting a vitreous and ropy discharge, or bleeding at the slightest touch—one in which the cervix fills up the whole lumen of his speculum; one which improves by rest, but relapses with exercise; or say, one in which the sound cannot be made to enter the canal at the centre of an apparently patulous os, as it ought to were the os merely enlarged, but only at one end of it; or if he should have a case which, by unremitting attention, he has succeeded in skinning over, and yet in a short time his patient returns for treatment, as bad as before, with the new epithelium rubbed off, by coition or by vaginal attrition—if he have such a case, let me ask him to examine his patient for a rent of the cervix, first with the finger and then in the following way: Place the woman on her back, and use a

FIG. 62.



THE TORN LIPS DRAWN TOGETHER BY TWO TENACULA; DISAPPEARANCE OF THE APPARENT EROSION.

base-opening bivalve speculum; or on her side, which is the better position, and introduce a duck-bill speculum. Take next a uterine tenaculum in each hand, and hook the fore and the hind lip of the cervix, each lip on its vaginal surface. Try now

to draw the two lips together forward, and if a rent exists, they will come in contact, the cervix will become smaller, the supposed "ulceration" will disappear, and a cleft will run across the cervix (Fig. 62). By such an examination he will probably find that the apparently superficial opening in the cervix, which he has hitherto taken for the *os externum*, is in reality the mouth of the uninjured portion of the cervical canal, and on a level with the forks of the fissure, being actually from half-an-inch to nearly an inch away from the site of the original *os externum*. And he will by this time have discovered that the collar of erosion surrounding this supposed *os uteri*, which he has been trying for months to heal, is nothing more or less than the naked and chafed mucous lining of the split-open cervical canal. He will now take in the situation, and see that this delicate membrane cannot be healed unless shielded, and that it cannot be shielded unless by the restoration of its protecting canal.

Let me not convey the impression that every woman who has an ununited rent of the cervix is doomed to sterility or to hopeless invalidism. Far from it; there are those who seem as unconscious of any ill effects from such a lesion, as some few healthy women who carry retroverted or retroflexed wombs. One lady I know, who has borne several children, and is still bearing, although her cervix was split in two at her first labor. Another, with a like injury, has been barren since her first labor, but is otherwise well. In these two cases, however, each flap of the rent has skinned over, and their edges lie parallel and have not curled over. Sometimes, again, the menopause will bring relief, but usually it does not, because the secondary lesions, such as sub-involution, hypertrophic elongation, and uterine displacements, will still continue. When, however, the lips of the womb have curled over, and the cervix assumes the form of a mushroom, its free portion being the most bulky; when the mucous lining of the cervical canal thus becomes everted, and has consequently been robbed of its epithelium; when a stubborn patch of erosion secretes an abundant and acrid discharge; when the womb stays congested or hypertrophied

or becomes displaced; then the only hope of a cure lies in the reconstruction of the cervical canal. In other words, whenever such lesions beget uterine disorders, and they very commonly do so, the woman will rarely get well without an operation. Sometimes, indeed, an operation will be needful simply to make the injured cervix project far enough for a pessary to lodge behind it. And this brings me to the treatment of such lacerations.

An acute laceration of the cervix should be treated by great cleanliness and by rest, so long as inflammatory symptoms keep up. The vagina should be washed out twice daily by weak solutions of carbolic acid or of the potassic permanganate, for it is asking too much of nature to heal kindly a wound drowned and sodden in a puddle of stinking lochia. If hemorrhage be profuse immediately after the accident, a lump of ice should be placed in contact with the cervix. This failing, vaginal injections of alum or of tannin may be made, but not of iron, which interferes with immediate union. In very bad rents it would, perhaps, be best to stop the bleeding by the introduction of silver-wire sutures. In any case, I think it should be the duty of an obstetrician to examine his puerperal patient carefully, both immediately after labor and just before he gives up his attendance on her, so that if a rent of the cervix exists he may discover it and be prepared to treat it *secundum artem*.

Should the rent fail to close, and his patient refuse an operation, the best treatment will be that which lessens the local congestion, and tends to glaze over the naked villi. These ends are best furthered by vaginal injections of at least a gallon of water as hot as can be borne, by the puncture of the retention cysts, by the nightly introduction of a tampon charged with glycerine, or by vaginal suppositories containing tannin or the iron persulphate. One drachm of tannin together with half a drachm of metallic iodine, or two drachms of iodoform, dissolved in an ounce of flexible collodion, makes an excellent application. It protects the raw surface by an alterative, a styptic and an elastic pellicle, which lasts for several days. Good will also be gained by painting the eroded surface every five days with a saturated tincture of iodine, followed occasionally before it dries by a weak

solution of the silver nitrate. This forms a protective and an alterative crust of the silver iodide. The common practice of treating these erosions with the solid stick of lunar caustic is a bad one, on account of the cicatricial tissue which it leaves behind. Such a dense and gristly tissue often pinches peripheral nerve-filaments so severely as to produce ovarian or uterine neuralgia, wholly or partly quenching sexual desire, and causing other psychological disturbances. Often a pessary will do good, if for no other reason than that of lifting up the cervix off from the vagina, and of stopping the friction of locomotion. As the menorrhagia in these cases often comes from fungoid proliferation of the endometrium of the sub-involved womb, much advantage may accrue from the use of the curette.

Should an operation be decided upon, it must not be hastily undertaken. Success depends largely on the state of the woman's health, and upon the condition of her pelvic organs. Some preparatory treatment will usually be needed. Whenever the monthlies are profuse the preliminary use of the curette is always good practice. If the womb be fixed, or the roof of the vagina be hard and tender, an operation would be very likely to rekindle the embers of a previous attack of pelvic inflammation. If the cervix be engorged with blood, or be studded and stiffened with enlarged Nabothian glands, the denuded surfaces will probably not unite. Blood must be taken from the cervix by scarification, and these glands must be punctured and emptied. Vaginal injections of a gallon of hot water twice daily will be of service. So also will local applications of carbolized iodine, and vaginal suppositories containing half a grain of morphia and three of tannin. Pledgets of absorbent cotton dipped in a glycerole of tannin and packed in front of the cervix and behind it, will meet two ends. They will make the cervical tissues more healthy, and will keep the lips from spreading apart. If the broad ligaments be tender, small blisters over them, frequently repeated, will do much good. In such cases I am in the habit of prescribing small doses of corrosive sublimate united either with the ammoniac chloride, or with the tincture of the iron chloride. When all traces of inflammatory deposits have

disappeared, the time has come for the operation, but not before, as a rule. In one obstinate case, however, I attributed their persistence to the irritation set up by the cervical lesion, and by curing this I cured the phlegmon; but this is hazardous practice.

The proper time for an operation on the female organs of generation, is during the week following that of the menstrual flux. This woman's catamenia ended four days ago, and her cervix, through a preliminary treatment of scarification and of applications of iodine, is in a fit condition for the operation which I shall proceed at once to perform. But this operation is a very unsatisfactory one to perform before a large class. Very few of you will be able to see what I am about to do, and you will have to rely upon my fragmentary explanations as I go along. You may place the woman in the left lateral position, but I generally prefer to put her in the lithotomy position, and shall therefore turn her on her back. After introducing the duck-bill speculum, I first separate the lips of the fissure by two tenacula, so as to find out the position of the cervical canal. I then draw them together in order to determine the site and the size of the future *os externum*, due allowance being made for after-shrink-

FIG. 63.



DOUBLE TENACULUM.

age, which, on account of the mushroom-form of the cervix, will be greatest at this opening. Having mapped out the amount of tissue needing denudation, and having left what painters call space for repentance, I steady the cervix by a double tenaculum (Fig. 63), which I hand over to an

assistant. Next, I pare the lateral edges of what is to be the future *os externum*, and pass on each side of it, through both lips of the cervix, a long iron-wire suture. Traction on these two strong wires by an assistant, drags the cervix down within manipulative reach. I shall now proceed to denude the edges of the fissure, and to dissect away all the cicatricial tissue in a wedge-shaped piece. Mostly with this long-handled knife, and occasionally with these variously-curved scissors, I have carried the dissection completely around the cleft on the left side in a single strip. But on the right side I shall not be able to do this, because the fork of the rent dips down below the vaginal roof. In freshening so deeply situated an angle, the circular branch of the uterine artery is in danger of being wounded, and I shall merely skim the surface with this delicate knife curved on the flat.

The hemorrhage during the whole operation has been free, and, by obscuring the parts, is troublesome. For staunching this, Emmet, to whom we owe all that we know about this operation, recommends a watch-spring tourniquet placed high up on the supra-vaginal cervix; others employ the loop of a wire-écraseur; but I do not use them for fear that they may injuriously constrict the bladder or the peritoneum in Douglas's pouch. I have, however, found that traction on the ends of a wire-suture passed deeply below the fork of the wound, will stay the bleeding, at least enough to permit further careful denudation, while the subsequent co-aptation of the raw edges by stitches will effectually stop it. Since the flaps are too dense and too much curled over to be brought into close contact, I shall shave off their redundant convex surfaces. At one point I have split open an enlarged Nabothian gland, which at once discharged viscid fluid like honey. The secreting wall of this gland may interfere with union at its site, and I shall therefore dissect it out of its bed.

The introduction of the sutures is the next thing in order, and it is by all odds the hardest part of the operation. The ordinary surgeon's needle is not strong enough to penetrate the dense and glistly tissues; besides that, its cutting edges might

wound a vessel of some size. The best needle for this purpose is this short, round, lance-pointed one, devised by Dr. Sims. Waxing the ends of a fine silk ligature, I pass them together through the eye of the needle. My assistant then separates them, and ties them in a half-knot around the loop just beyond the needle. The needle is secured in the jaws of a very strong needle-holder, and is passed with about as much difficulty as if it were penetrating sole-leather. My assistant now sharply bends the end of a silver-wire suture and hooks it over the silk loop. As I pull the loop through, the wire, of course, follows. In this way I shall put in every wire-suture, merely twisting the ends of each wire temporarily together. They are all in, and the wound will now be syringed with carbolized water, so as to be rid of all clots. Each suture is then secured by clamping it with a perforated shot. The denuded surfaces have been brought into such close and accurate contact, that not a drop of blood is flowing. Sometimes, however, a secondary hemorrhage may take place, but probably from a suture track, in which a vessel has been wounded by the needle. However arising, it may be staunched, as Emmet has shown, by vaginal injections of water as hot as can be borne, or by a saturated solution of alum, which in my opinion is one of the best of hæmostatics, besides not interfering with union by the first intention. I have, however, never met with a bleeding sufficient to need any kind of treatment whatever.

The pain after the operation is very trifling, barely exceeding what most women suffer at their monthlies. The after-treatment will consist in keeping our patient bedfast for two weeks, in binding her bowels for six days, and in drawing her water for eight and-forty-hours. At the end of that time the woman may get on her hands and knees, and empty her bladder herself. I prefer this position to that on the bed-pan, because in the latter there is some danger of the urine trickling down into the vagina, and reaching the wound. After the third day her vagina will be washed out twice daily with a weak carbolized solution. On the seventh day a cathartic will be given, and by the eighth or the ninth the stitches can be removed. I shall not

leave them in longer, lest they should cut such deep furrows into the cervix as must heal by cicatricial tissue. When performed with care, and after the manner in which I have just described, this operation is perhaps the most successful one in uterine surgery.

In illustration of the advantages gained by the repair of such a lesion, let me read from my case-book the history of two of my patients. The one has been chosen on account of my mistaking the rent for an erosion, or ulceration, of the womb; the other, to show what physical and psychical disturbances it may give rise to.

CASE I.—C. D., aged 27, had her first and only labor ten years ago. She has not conceived, nor been well, since. For a long time she was under the care of one of our best physicians. Failing to cure her, he sent her to me with a note, stating that she had the worst and most stubborn erosion and leucorrhœa that he had ever met with. I found a young and handsome woman suffering distressing bearing-down feelings, frequent micturition, constant pain in her back—in short, with every ache that a disordered womb can possibly give rise to. Sexual intercourse was painful, and followed by bleeding. The catamenia were profuse and protracted, and the intermenstrual leucorrhœa abundant. The womb was heavy, retroflexed, and 3.5 inches long. The cervix, badly torn bilaterally, was bulky and very tender to the touch. It was occupied apparently by a large blood-red erosion. From it and the cervical canal, there issued the most abundant and the most tenacious discharge I ever saw. It could be drawn out in strings fully a yard long. This happened some years ago, before I had begun to appreciate the important rôle which a torn cervix plays in the production of uterine disease, and for many months I mistreated her. True, I used douches of hot water, together with scarification and iodine, and also shored up the womb with a pessary, all of which was well enough, and gave her much relief. But I also applied chromic and nitric acids, the silver nitrate, and in short, used every known means to cure the supposed erosion. No further good came from them, however, and she finally gave me up.

Long afterwards, when my eyes were opened to this subject, I remembered this unfortunate patient, and hunted her up. She had meantime been trying several other physicians, who had also failed to do her any good, but her confidence in me was shaken, and I found her in no mood for an operation. Yet other physicians were consulted, and with like results, until finally, driven by sheer despair, she returned to me, but in far worse plight than before. Coition was now shunned, sexual desire had nearly disappeared, and the seeming erosion had by this time been in a measure replaced by dense cicatricial tissue. Aided by Drs. B. F. Baer, W. H. Heath, and P. G. Skillern, in October, 1877, I denuded the edges of the rent, and cut away all the cicatricial tissue, which creaked under the knife and scissors like sole-leather. Three sutures were needed to close up one side, and four the other. Perfect healing took place, so perfect that in ten days the line of union on the left side could not be seen. The leucorrhœa at once began to lessen, and the other symptoms to mend. When I last saw her, about six months after the operation, the sound gave a measurement of 2.5 inches; the os was round and free from the slightest vestige of erosion; the womb had righted itself, and no longer needed a pessary. She was in short well, and very grateful.

CASE II.—M. C., aged 30, gave birth, some seven years ago, to her first child, after a long and hard labor, in which the forceps was applied, and a still child delivered. Being the daughter of a physician, she had, beside her father, excellent medical attendance. After being bedfast for several weeks, she slowly mended enough to get up, but not without all the symptoms of arrested involution. Previously in rude health, she has never been well since, nor has she again conceived. I saw her first in the autumn of 1875, some four years after this labor. She complained of worrying pelvic pains, of great weariness and weakness, of loss of sleep and of appetite. There was also a total loss of all sexual desire, which led to complaint and estrangement on the part of her husband. Like the preceding case, she had severe menorrhagia, and an abundant and a stringy leucorrhœa. Her nervous system was so wholly upset

that she was the victim of distressing hallucinations. For instance, she could not stay in a room by herself; had a constant apprehension of some impending danger; never dared to leave her home without a companion, and even then fancied that every one she met looked askance at her, or that some evil-minded person was following her. Body and mind were alike shattered, and she was altogether in very bad case.

I found the womb large and heavy, retroflexed and tender, length + 3 inches, the cervix on either side torn flush with the vagina, and the everted lining of its split canal crimson and angry-looking. She was averse to an operation, and I had to content myself with palliative means—pretty much the same as those used in the former case. She grew much better, but by no means well. Relapses were frequent, and for the next two years she was more or less under my care. Finally, her sexual apathy and her barrenness, more perhaps than anything else, led her to submit to an operation, and I restored the cervix in June, 1877, being assisted by Drs. B. F. Baer, H. Wharton, and W. H. Heath. Four stitches were needed on each side, and perfect union took place. Eleven months afterwards I saw her for the first time since she went home, and found her wonderfully bettered. For the first time she came to my office alone, and that in itself was to me a sure token of returning health. The womb had shrunk back to very nearly its natural size, the retroflexion had changed to a version, the erosion had gone, the leucorrhœa had ceased, her hallucinations had vanished, and, as she took pains to inform me, her sexual feelings had returned. She had not yet conceived, and that is a serious drawback to her happiness; so I inserted a pessary with the hope that a change of version would cure the sterility.

## LESSON XVII.

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### *Cancer of the Womb.*

A CANCER of the womb usually begins on the vaginal portion of the cervix, and creeps upward. The part first attacked is that which bears the brunt of the "insults" of coition and of parturition. This course is not invariable, for I have seen a true cancer start in the body of the womb, and gnaw its way downward to the cervix. But the former course is fortunately the one so commonly taken, that in a large majority of cases the parts involved, being accessible, can be treated surgically, and, as I hope to show, beneficially.

Since very generally a cancer on the cervix begins either as an open sore or as a fungous growth, its diagnosis is not often a matter of difficulty. Other diseases may be mistaken for it, but very rarely is it mistaken for anything else. The speculum so often breaks off the friable vegetations, and starts up an obscuring, and sometimes a serious flow of blood, that it should not in the first instance be resorted to for the purpose of diagnosis. A digital examination is generally all that is needed, and for this purpose, in order that you may avoid the risk of infecting your puerperal patients, I would urge upon those of you who are right-handed to train the fingers of your left hand. If vegetating, a cancer of the cervix may be taken for a polypus or for a fibroid growth. If an open sore, its bleeding character, its hard and sharp rim, its pit filled with rough and friable granulations, the crater-like ulcer, present unmistakable tokens of malignancy. Should a cancer in its early stage be undistinguishable, by the ordinary tests, from other cervical diseases, the diagnosis may be cleared up by the introduction of a sponge tent. Thus, if the cervix soften down, the os dilate, and the

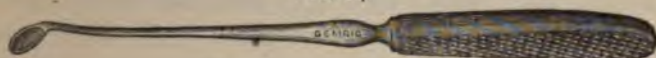
mucous membrane become movable under the expansion of the tent, the disease is probably a benign one. If, on the other hand, the cervix remain hard, its mucous covering immovable, and the os unyielding, the suspicion of malignancy will be confirmed.

How to distinguish the various kinds of uterine cancer is not only often impossible, but is clinically needless. The life-saving problem seeking solution is, not the character of the cancer—whether it be schirrus, or be encephaloid, or be epithelial—but the removal of the cancer. Yet it is well to bear in mind that of these three kinds, the epithelial, and especially its vegetating form, is the least malignant and the most localized. While unprepared to range myself under the banner of the "localists," I am yet sure that uterine cancer very commonly attacks women of fine physique and blooming health; and that, as pointed out by Cruveilhier, a cancer of this organ is, of all cancers, the least prone to infect the system. Its victims die, not so much from specific systemic poisoning, and from transference to distant organs, as from septicæmia, from embolism, and from the exhaustion induced by pain, by sleeplessness, and by the bloody or the serous fluxes. I am also further satisfied that the patient of the "localist" will live longer, suffer less, and stand a better chance of a cure, than the woman who is treated with palliative measures only.

Whenever the cervix becomes the seat of a malignant growth, the common sense indications are, either to eradicate the disease, or to check the excessive serous and bloody discharges, to correct the fetor, to allay the pain, and to prolong life. Now, the crumbling vegetations and surface growths cause these serous, bloody and fetid discharges. The pain comes from progressive infiltration. It stands, then, to reason, that whatever restrains these must prolong life. And, of course, if the disease can be eradicated, life may be saved for good. Hence the plan which meets these indications is assuredly to take away the whole, or as much as possible, of the diseased structures. To achieve this, the whole cervix must be amputated, and that either by the cold wire of the *écraseur*, or by the hot wire of the battery.

Should this operation wholly remove the cancerous mass, well and good. But if not, the remaining outgrowths, and the underlying infiltrated tissues, must be dug out with the finger-nails, scraped off with Simons' spoon-curette (Fig. 64), and

FIG. 64.



SIMONS' SPOON-CURETTE.

snipped off with scissors. The resulting deep and funnel-shaped cavity must next be either charred by fuming nitric acid, or seared over by the hot iron.

By the *hot iron* I mean the ordinary actual cautery, or the benzoline cautery, or the porcelain domes of the galvanic battery. And here let me say that I have found Dr. J. Byrne's cautery-battery to be one of the best for this, and for all other gynecological purposes.

We often have cases of cancer brought before us in this clinic, and many of you have already seen me operate by each one of the above methods. But we rarely see these clinical cases again, and know very little of their subsequent history. I shall therefore offer no excuse for reading the notes of a few cases which illustrate the different radical operations, and whose subsequent history I was able in a measure to trace.

CASE I.—Early in November, 1873, I was summoned into the country by my friends, Drs. Joshua R. Evans, and R. N. Downs, to see Mrs. A. M., a woman of about forty, and the mother of several children. I found her bed-ridden, and looking as if she had not long to live. She was, in fact, so low as to be dull of hearing, stupid, and apathetic, like one in the last stages of typhoid fever. Her rest was broken by severe stabs of pelvic pain, and her strength exhausted by alarming intermenstrual hemorrhages. By the frequency of the latter her complexion had become waxy, and her flesh so translucent-looking as to give the impression that, by the aid of a strong light, one could map out every viscus of her body.

Some months before, she had begun to feel unusual sacral

pains; then to have watery and bloody discharges; and what with the loss of rest, and with the drain of vital fluids, she had become so weak as to take to her bed some three weeks before my visit. I found the upper portion of the vagina filled by a mushroom-like tumor, which sprang from the cervix of a movable womb. With some misgivings, on account of her weakness, we put her under ether, and noosed the mass in the loop of the *écraseur*. The whole cervix was cut off, but not without the snapping of a very strong wire. Some cancerous nodules beyond the reach of the wire were scraped away with Simons' spoons, but hastily, on account of an alarming hemorrhage which followed the removal of the mass. This was checked by an application of Monsel's solution, and by plugging up the vagina. The tumor was subsequently examined by Dr. J. G. Richardson, who pronounced it to be malignant.

A week later I charred the whole raw surface with fuming nitric acid. This visit is vividly impressed on my mind by the following circumstance, which I note down as a warning to others. At the suggestion of a chemist who should have known better, I had closed my bottle of nitric acid with a rubber stopper, instead of with the glass one, which was liable to get loose. During the jolting of the railroad cars, and of a ride of several miles in a carriage, the stopper was attacked by the acid, and a gas generated. While kneeling before my patient, and stooping over the bottle to open it, the stopper popped out, and a sudden explosion forced out a fine spray of the contents over the upper portion of my person. I quickly plunged my face and hands into a basin of water, and fortunately escaped with nothing more serious than a smart conjunctivitis and the ruin of a suit of clothes. Since this lesson I have used no other stopper than a glass one, and before taking it out I always cover the bottle with a wet wash-rag, and avert my face.

But to return to my patient. After another such application, and the use of arsenic, iron and ergot, she improved astonishingly. The grave seemed, indeed, literally to give back its dead. I never saw any one so low recover so promptly. The cervical stump skinned over, her hemorrhages stopped, her

pains and aches left her like magic, and the color came back to her lips and cheeks. She very soon got out of bed, and for seventeen months performed all the duties of a brisk housewife. During this time I saw her perhaps half a dozen times. She came, not on account of any local trouble, but to be reassured that all was doing well. Each time I found the womb movable, and with no other reminder of a cancer than the absence of the cervix. To all intents and purposes she was perfectly well.

On May 29th, 1875, I was again asked by Dr. Evans to see her. I found her exhibiting marked cancerous cachexia, and suffering from cruel sacral pains of recent origin. The still movable womb was absolutely without a vestige of disease. But through the posterior wall of the vagina I felt a hard nodulous tumor firmly attached to the sacrum. Nothing more could be done for her than to allay her sufferings. A few weeks later she died.

CASE 2.—J. R., a German woman, aged fifty-one, had four children, the last one four and twenty years ago. Her menstrual flux ceased in 1870, but in November, 1873, a hemorrhage took place, which she mistook for rejuvenescence. Since then she has become much reduced by repeated floodings and by constant rest-breaking pains. Early in November, 1875, I saw her for the first time. The so-called cancerous cachexia was then very marked. Her complexion was leaden, and she was so weak as to need help in getting on the examining table. Most abominable was the stench arising from her person. I found the upper portion of the vagina blocked up by a large nodulated mass, so friable that a very gentle digital examination brought on an alarming hemorrhage. I was glad enough to be able to check it with Monsel's solution, and by a tampon.

On November 16th, 1875, she was etherized, and brought before the medical class of the University of Pennsylvania. With the wire-écraseur, a cancerous excrescence as large as a goose's egg was removed. The womb was now found to be immovable, the cervix much enlarged, and occupied by an

excavating ulcer. Its sharp and rugged margin gave a crater-like form to the part. There was no chance at getting the wire-loop above the site of the cancer. So, with the finger-nails of my left hand, I dug out a handful of the more brittle growths, and scraped away the rest with sharp spoons of different sizes. Such portions as resisted these modes of attack were snipped off by the scissors. Free bleeding kept up until healthy structures were reached. By this operation the cervix was hollowed out into the shell of a funnel-shaped excavation, which reached from bladder to rectum, and up as far as the internal os. Into this a large sponge was packed, and the woman put to bed. On the next day this sponge was removed and the vagina washed out. For three or four days, in spite of repeated detergent injections, the stench of her discharges was overpowering. It poisoned the air of a large ward. It then passed away, and with it the slight febrile movement which always follows such operations. A week later I made a thorough application of nitric acid to every nook and cranny of the raw pit. Under arsenic, iron, the mercuric bichloride, and ergot, she rapidly improved. Her hemorrhages ceased, her appetite returned, her complexion cleared up, and she was soon able to resume her long-neglected housework. Her gratitude was great and rather annoying.

In the following July, eight months after the operation, she had a hemorrhage. For this I made another thorough application of nitric acid, and it did not recur. I saw her last on December 29th, 1876. She was not losing blood, nor suffering pain; but she sent for me on account of growing weakness. I found her up, but too feeble to attend to all her housework. For the past week a kind neighbor had helped her along with it. The cancer had attacked the body of the womb, and she was evidently failing. She lived some four months after this, but had no return of hemorrhage.

CASE 3.—I. H., an English woman; was married nine years ago. She is twenty-nine years old, and has had two children. On account of several severe uterine hemorrhages, she was sent to me by a friend, early in March, 1875. Her youth, her bloom-

ing complexion and generally healthy appearance, pointed to a polypus or to a fibroid tumor, and I was somewhat surprised to find the cervix partly eaten away by a cancer. As the womb was movable, I urged an early operation. To this she did not at once assent, and it was not until April 22d that I brought her before the class. Seizing the cervix with a volsella forceps, I noosed it in the galvano-caustic loop, on a plane flush with the roof of the vagina. While burning it off, I made firm traction with the volsella, and counter-pressure with the shaft of the electrode, so as to remove as much of the cervix as possible. Notwithstanding this was done very slowly, a small artery spouted from the cup-shaped stump. The bleeding was stopped by the porcelain cautery, with which the whole wound was again seared over. The hot wire also scorched the upper portion of the vagina, but she did not seem to mind this, and recovered without a bad symptom. Several weeks elapsed before I could get the sore to skin over, and I began to fear that it never would. But under repeated applications of the silver iodide, it finally healed up, and the woman became well. Two months ago, that is to say, nineteen months after the operation, she came to have me examine her. She was about to return to England, and wished before going to know the condition of her womb. She looked extremely well. Apart from the absence of the cervix, I could find no trace of a cancer.

CASE 4.—Early in the spring of 1875 I was asked by a medical friend to aid him in the removal of a cancerous cervix. The lady was over forty-five years old, and the mother of several children. She had suffered from all the usual symptoms of such a cancer, and had finally taken to her bedroom, but not actually to her bed. I was struck with the typical leaden complexion of her face. The cervix was extensively invaded, both superficially and deeply, but the womb was movable. One of its lips had been eaten away up to and slightly beyond the vaginal insertion. By two installments of the hot wire the cervix and a portion of the vagina were removed, and the rest of the diseased structures burnt out with the porcelain domes. During the operation much traction on the cervix was needed, and a

portion of the bladder was at first included in the wire-loop. It would certainly have been cut off, had not the discovery been made by passing in the little finger through the urethra.

After recovering from the shock of the operation, the lady's complexion began to clear, but her convalescence was not a rapid one. It was not until after she had been sent to the seashore that she slowly but steadily gained in health and strength. More than four years have now elapsed since the operation, and, apart from cicatricial deformity, not a trace of the disease is discoverable. The lady is now able to attend to her household duties, and to be a useful member of society. The cancer may return; it probably will, as the vagina was implicated, but as things now look, she bids fair to live for years to come.

CASE 5.—In February, 1875, the day I cannot now recall, Dr. W. R. Cruice asked me to see Mrs. B., who lived in the outskirts of the city. I found a married woman, over fifty years old, bed-ridden for several weeks, and so worn out by constant suffering, and so drained by repeated floodings, that as Dr. Cruice expressed himself, and as I firmly believed, "she had not a month longer to live."

The womb was immovable; the cervix much enlarged and shockingly ravaged by a partly vegetating and partly excavating cancer. Being unadvised of the nature of the disease, I had not brought the needful instruments. She was, moreover, so low that I dreaded even the loss of blood attending an operation. But, with Dr. Cruice's backing, I went to work, first with my finger-nails, and afterward with a small but sharp uterine curette that happened to be in my bag. About two handfuls of cancerous flesh were thus removed. Not having any fuming nitric acid with me, and the nearest apothecary being far from the house, I swabbed out the excavation with a saturated tincture of iodine. I never saw her again, but Dr. Cruice has informed me that she soon got out of bed and attended to her household affairs. Two years after, he saw her in the street on her way to market. She lived six months longer, but with no return of hemorrhage, and died from exhaustion. I am sure that the operation gave her a new lease of two years and a half of life.

CASE 6.—Over two years ago I removed a cancerous cervix from a lady who was sent to me by my friend, Dr. Crawford Irwin, of Hollidaysburg, Pa. The parts were with difficulty noosed by the galvano-caustic loop, and for the first time in any of my operations, I scorched the vulva. By this circumstance the lady's convalescence was somewhat delayed, but she got well in three weeks' time, and has remained free from the disease ever since.

Now, in the foregoing cases, there can be no mistake between the relation of cause and effect. Nor do they embody my whole experience, for I have thus far treated over thirty cases of uterine cancer, and with very like results. In all, sexual abstinence was enforced, and the patient put on iron, the mercuric bichloride, arsenic, and ergot—the iron and mercury to redden the blood and to build up the system; the arsenic to repress the tendency to reproduction; the ergot to excite such tonic uterine contractions as tend to shorten the blood rations of these growths, and starve them out. The immediate effects of this treatment were invariably satisfactory. Life was lengthened out and made bearable; in two instances, as I believe, saved for good. The hemorrhages were stayed, the putrid discharges checked, and the cruel pains allayed. The appetite was restored, and bed-ridden patients were once more put on their feet. Even when the womb was firmly fixed, from extension of the disease to points beyond operative reach, much was gained by the removal of all the cancer possible, and, in one case, by a second removal of fresh growths. Another point noticed was the invariable clearing up of the complexion after the operation. This fact leads me to think that the so-called cancerous cachexia is owing, not to a cancerous diathesis, but to absorption of septic material from the local cancerous lodgment. The cause is evidently topical, and not general.

In view of this favorable record, I cannot but think that absolute cures would result far more frequently were the cases brought to the notice of the physician at an earlier stage, when, for instance, the womb is still movable, and the cervix superfi-

cially attacked. Contrary to the prevailing opinion, the beginning of this cruel disease is not usually attended with any pelvic pains and aches greater than those evoked by ordinary uterine troubles, and they are, therefore, disregarded. Again, the woman is often fat and hearty, with perhaps a good color, and these tokens of health deceive her and her friends. When, finally, she seeks advice, it is for some exacting symptom of an advanced stage, such as a hemorrhage after coition, or putrid discharges. The womb will probably by this time be fixed immovably by cancerous infiltration in the connective tissue of the vaginal roof. Or the cancer may have eaten its way laterally to the peritoneum, or upward beyond the internal os uteri, and the parts are now too extensively diseased to be wholly removed. It must, however, be borne in mind that the immobility of the womb does not always imply an extension of the disease beyond its walls. The parts sometimes become matted together, from peri-uterine fibrinous exudation, an inflammation being set up by the irritation of the cancer.

The radical plan of treatment is not wholly devoid of danger, but less so than might at first blush be supposed. During the operation, if scraping be needful, the hemorrhage is free, usually quite so, until healthy structures are reached. But it has always yielded in my hands to an injection of one part of Monsel's solution to three of water, followed by a sponge tampon, lightly packed in the funnel-shaped pit. The vascularity of the parts is such that, unless the cervix be amputated very slowly, a secondary hemorrhage may take place. This accident I have seen happen three times after the use of the hot wire, but not after that of the cold wire.

Injury to the peritoneum constitutes another hazard in the removal of the cervix. This accident cannot always be avoided, but the risk to life is greatly overrated. Thus, in order that the hot wire may pass through perfectly healthy tissue, Karl Braun does not hesitate to include a portion of the peritoneum.\* He declares that he has in this manner repeat-

\**Philadelphia Medical Times*, February 20th, 1875, p. 325.

edly made an opening into the peritoneal cavity, yet with apparently no increase of risk to the patient's life. I have never ventured wittingly to invade this cavity, nor have I yet, in the removal of a cancerous cervix, met with the mishap of including the peritoneum in the wire-loop. But, on one occasion, while scraping away a cancer of the cervix with the nails of two fingers, I suddenly found them in Douglas's pouch. I took good care not to use any vaginal injections, and no untoward symptoms arose. The patient, indeed, kept her bed for only a few days, and then felt well enough to take a long journey home by rail. The bladder has been wounded, but it should never be. The introduction of the little finger through the urethra into this viscus ought always to guard against this danger, as it did in Case 4; while to ensure still further its safety, the cervix should, as a rule, but not as an inflexible one, be noosed while the womb is *in situ*, and not dragged upon. It is well, also, when the *écraseur* is used, to pass up its shaft in front of the cervix, where the insertion of the vagina is lowest, and then by it to push up the womb before tightening the wire. This precaution is unnecessary when the hot wire is used. Soon after the operation the body-heat mounts to a sharp curve-peak, and the pulse sympathizes. This febrile movement lasts for four and twenty hours or more, and then the temperature tends to fall. On the third or the fourth day the discharges sometimes become offensive, and continue so for several days. After the scraping process, the stench is invariably overpowering. This must be met by vaginal injections of a claret-and-water colored solution of the potassic permanganate, while the danger of blood-poisoning should be lessened by the administration of large doses of quinia.

Should the disease return, the friable portions of the mass must be scraped off by a sharp curette or by Simons' spoons—a very efficient curette can, it seems to me, be extemporized, by heating red-hot the tip of a long and narrow spatula, and then bending it to nearly a right angle. The raw surface must next be well swabbed with nitric acid, or thoroughly seared over with the hot iron—the benzoline cautery of Pacquelin comes admir-

ably into play here. The previously detailed form of constitutional treatment should be continued indefinitely—the dose of corrosive sublimate being lessened and that of arsenic increased. Sexual intercourse must be absolutely forbidden, for attempts at coitus are frequently followed by serious hemorrhages. From the very repulsive nature of this disease, this caution may seem unnecessary; but the fact is, that the sexual appetite of the woman is sometimes greatly increased by a pruritus vulvæ and by the excessive vascularity of the reproductive organs. With regard to other local treatment besides the nitric acid, Dr. Burow, of Königsberg, has given such unqualified praise to the continuous application of the potassic chlorate in substance,\* that I shall certainly give this drug a fair trial, and meantime, recommend it on his authority. He sprinkles the sore with the chlorate, and then covers the whole with a wet compress. As the crystals exert a more powerful action than the powder, he first uses the latter, and replaces it by the crystals when sensibility has abated. With alleged success, pepsin in powder has lately been applied to these cancers in pretty much the same way, but with it I have no experience.

In addition to the means employed by the physician, the patient herself should be taught how to check the constantly recurring hemorrhages. This she will very generally be able to do by injections of ice-water into the vagina, by cotton-wool tampons containing tannin, or the iron subsulphate, either in the form of a dry powder or in that of a glycerole, or charged with a paste made by thickening a saturated solution of alum with tannin. These tampons or suppositories should, by the way, be removed, as a rule, in from two to three hours; for if left in longer, they may become so adherent to the warty surface of the cancer, as in the removal to tear off the more friable portions, with a renewal of the hemorrhage. Vaginal injections of any of the astringents, as strong as they can be borne, will also prove of service. When pain is present, morphia may be incorporated with any of the above washes and suppositories. A

\**Lancet*, April 12th, 1873, p. 525.

very efficient instrument for the woman to use, in making a prolonged contact of styptic or of deodorant fluids to the cervix, is a glass tube like the vaginal portion of a Fergusson speculum, to one end of which is attached a rubber bulb.

To correct the horrible odor, vaginal washes containing alum or carbolic acid, the chloral hydrate, or the potassic chlorate or permanganate, will be found extremely useful. Of these the chloral hydrate has my preference, because it is not only an admirable deodorant and antiseptic, but a very prompt local anæsthetic. The plan by which I have best succeeded in making my patient the least disagreeable to herself and to her friends, is the frequent use by day of some one of the above washes, and at night the introduction of a suppository containing a few grains of chloral, or of the potassic chlorate. Whenever the disease is far advanced, and the patient's sufferings are very acute, her euthanasia is all that is left to the resources of art. Anodynes should, therefore, be given without stint, in any way, shape or form the sufferer may prefer. For the agonizing pains in the back, so common in advanced stages of the disease, the promptest relief will be gained by a hypodermic injection of morphia, but a more permanent one sometimes follows the use of dry or of wet cups over the sacrum, or the application of a few leeches. For the suppression of the secretion of urine, occasionally seen in women suffering from this cruel disease, there is nothing better than small doses of potassic iodide combined with the tincture of digitalis.

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## LESSON XVIII.

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### *Vegetations of the Endometrium.*

THE vascularity of the womb, its sexual and periodic congestions, the structural energy with which it is endowed, and the lesions to which it is subjected, make it peculiarly liable to be invaded by benign and by malignant growths. The most common are those which develop in the endometrium in the shape of vegetations, and to these I shall to-day limit my remarks. Of these vegetations I shall describe three varieties, beginning with the one most frequently met with.

#### (a) FUNGOUS DEGENERATION OF THE ENDOMETRIUM.

A very common cause of menorrhagia, and also of leucorrhœa, is a hyperplastic condition or diffused thickening of the lining membrane of the womb. This peculiar proliferation of the endometrium shows itself by small sessile vegetations of a red, gelatinous appearance, which stud the mucous surface, and range in size from a millet-seed to that of a pea, by redundant mucous folds of a spongy consistence, and by club-shaped polypi. Then again there may be found small tufts of placental tissue, or placental villousities, which do not atrophy and disappear, because something has interfered with the process of involution. Various names have been given to this condition, but that of *endometritis hyperplastica* seems to be the best. A chronic endometritis is undoubtedly the most common cause; but whatever induces uterine congestion will also tend to produce these growths. Thus I have discovered them in wombs enlarged by a fibroid tumor, and in those containing a polypus. They are very common in subinvolved and in retroflexed wombs, and are almost always present in neglected

cases of laceration of the cervix. I have also on several occasions found them in women who were avoiding pregnancy, and especially by the method of withdrawal. Under such circumstances the uterus maintains a high degree of congestion, and by constant repetitions of the exciting cause, it increases in size, its mucous lining becomes thickened, and fungous degeneration takes place. Sterility also seems to be no infrequent cause of the same thing, the menstrual and sexual congestions continuing without that break which gestation and lactation bring. With regard to the influence of imperfect sexual relations, a very interesting case came to my notice not long ago. A lady consulted me at my office about severe uterine hemorrhages. A speculum examination revealed two small polypi dangling out of the os. These I twisted off, and then proceeded to examine the uterine cavity with the sound. Upon its withdrawal I found on its tip a club-shaped polypoid growth, very nearly an inch long. This led me to use the curette, and I removed a large number of fungoid growths from the cavity, quite the largest in size that I have ever seen. She was married to a man twenty-five years older than herself. In other words, he had reached a time of life when his sexual powers were failing, while she was at an age when her own were vigorous and exacting. His embraces were at long intervals, and so imperfect that they inflamed her passions without satisfying or allaying them. This was to my mind, as well as to hers, the explanation of the chronic uterine congestion, the origin of the cervical polypi, and the cause of the fungoid degeneration of the endometrium. And here let me say that, in my experience, so close a relationship subsists between the existence of these cavity growths and that of cervical polypi, that the latter are pretty sure to be accompanied by the former. This explains the fact that the removal of cervical polypi is often not followed by the expected improvement in the menorrhagia. Whenever, therefore, cervical polypi are present, the uterine cavity should be searched for its own vegetations.

Endometritis hyperplastica is a disease more particularly of the child-bearing age; but, as will shortly be shown, it some-

times affects women long after the climacteric. Its existence can only be inferred by an ordinary uterine examination. The sound usually causes some blood to flow. When sponge or laminaria tents are used, these vegetations or mucous folds are so flattened out and smoothed out by the pressure that the finger will rarely find them on the sides of the uterine cavity; but those on the fundus will very generally be felt either as slight roughnesses or as slight spongy tufts of mucous membrane which retreat before the finger. The only sure test of their presence is the gentle scraping of the endometrium by a curette, which will dislodge some of them, and will then bring away either club-shaped polypi or soft, gelatinous masses.

The disease being one of the endometrium, the microscopic examination will show characteristic changes in the mucous lining of the womb, but always reproducing the parent tissue. There will be found, according to Olshausen,\* "greatly hypertrophied mucous membrane, with increase of all its elements, dilated follicles, enlarged blood-vessels, and great cell infiltration of all the connective tissue. Running up to the epithelium are large ectatic blood-vessels filled with coagula, and near them great numbers of white blood corpuscles, quite round and fresh-looking; while around the enlarged follicles there are many spindle cells arranged in regular lines. These prove the chronicity of the affection. Cross-sections of the glands show them to be round and normal. The dilatation of the follicles differs in degree, but never amounts to a cystic formation visible to the naked eye. There is never any appearance of a decidua-like formation." Nonat† calls them "*fungosités intra-utérines*," and describes them as of the same structure as the uterine mucous membrane, being largely made up of connective tissue and fibroplastic elements, and covered by the epithelium peculiar to the endometrium. Mundé, in his admirable paper on the "Dull Wire Curette,"‡ quotes the microscopic observations of these vegetations by Dr. M. D. Mann, pathologist to the New York

\**American Journal of Obstetrics*, November, 1875, p. 561.

†*Maladies de l'Utérus*.

‡*Edinburgh Medical Journal*, January, 1878.

Obstetrical Society. According to him they "consist histologically of structureless basement substance, containing great quantities of small round cells and nuclei, and portions of uterine follicles and vessels."

When these vegetations are of this character, there is generally very little difficulty in the way of their cure. Their existence being established by the use of a blunt curette, such as Thomas's (Fig. 65), they are to be removed, if possible, by the

FIG. 65.



THOMAS'S CURETTE.

same instrument. I say, *if possible*, because I have repeatedly found the blunt curette to fail in removing all the growths, and have had to resort to Sims's sharp curette, which is a far more efficient, but, at the same time, a more hazardous instrument. Simon's spoon-curette is also a very handy instrument for this purpose. Whenever the redundant mucous membrane hangs down in spongy folds, I have found nothing to remove it so well as a small pair of fenestrated polypus-forceps. It pinches off each fold without injuring the sound structures; but it has the drawback of needing some previous dilatation of the cervical canal, which the curette does not ordinarily need. The spongent sometimes cures this condition of the endometrium, either by crushing these vegetations or by entangling them in its meshes and breaking them off during its withdrawal. In most cases the curette is needed but once; but occasionally it will have to be resorted to oftener. Immediately after using it, I am in the habit either of swabbing out the uterine cavity with a strong tincture of iodine, or of injecting into it a few drops of the same fluid. One circumstance attending the use of the curette is the occasional postponement of the next menstrual flux. This result happens often enough to make it worthy of note.

In illustration of this treatment, I shall give the brief histories of a few selected cases:

CASE 1.—Mrs. H. J., aged 37, and seventeen years married, has had two labors at term, and one miscarriage ten years ago—the latter unwittingly brought on by the late Dr. Washington L. Atlee during a uterine treatment. Since then she has not conceived, but has had menorrhagia, which steadily progressed until her monthlies became floodings, which greatly reduced her. I thoroughly scraped the uterine cavity with the blunt curette, and brought away some vegetations and a few mucous shreds. The next period was so profuse that I repeated the use of the same curette, and again brought away like bodies. The following period was much better, and I thought her cured; but the succeeding one ushered in so serious a flooding that I made up my mind that an intra-uterine polypus was the cause of it, and I introduced three tents. On the following day, with the assistance of Dr. Hermany, of Mahanoy City, and of Dr. B. F. Baer, I put her under ether and removed the tents. The finger passed readily into the uterine cavity, but detected nothing besides proliferation of the endometrium. Using Sims's curette, I, however, removed many vegetations, and among them a piece of deciduous-like membrane, covered with ramifying vessels, and about half an inch wide and an inch and a half long. The uterine cavity was next swabbed out with nitric acid. This was rougher treatment, in so far as the acid is concerned, than I should now adopt, but it was followed by no worse inflammatory results than a slight metritis. This operation not only cured her of her floodings, but it more than cured her, for she did not again menstruate for six months, and is now quite irregular in the performance of that function.

CASE 2.—Mrs. —, of Omaha, consulted me about serious floodings at her menstrual periods, which had greatly reduced her strength. Failing to cure her by the blunt curette, I introduced a tent, put her under ether, and used the sharp curette and polypus forceps. Many vegetations were removed, but her next period was postponed for two months. She got well without any further treatment.

CASE 3.—M. McM., single, and aged 35, has always had free menstruation since puberty, but since January, 1878, her month-

lies have been exceedingly profuse. They began last on May 21, and, as they continued despite all treatment until June 15, her physician on that day securely plugged her vagina, and sent her to the Hospital of the University of Pennsylvania. She was pale, bloodless, and so weak that she was brought from the railroad-depot in an ambulance. I at once put in tents, and kept them in forty-eight hours, so as to gain complete dilatation with one batch of them. On June 17, assisted by Drs. Palmer and Jones, I removed the tents, and found three sessile polypi within the cervical canal, and one pedunculated one dangling within the os internum. This last one had acted like a ball-valve in hampering the flow of the menses, and had been the cause of much dysmenorrhœa. After twisting off these polypi, I scraped the endometrium and removed a large number of hyperplastic vegetations. She got well, and has stayed so ever since.

CASE 4.—F. J., a young married lady, from North Carolina, came to consult me about her general ill health, and especially about her sterility, she having been married already three years without conceiving. I learned that she had dysmenorrhœa, and was losing altogether too much blood at her periods. So, in October last, I scraped her womb with a blunt curette, but, finding very few vegetations follow its withdrawal, passed in the sharp curette. Numerous club-shaped polypi were removed. Her disease was a typical example of what Olshausen calls *endometritis polyposa*. Her next menstruation being free from pain and rather scant, she went home stronger and better than she had been for years.

Of such cases, of which the above are but samples, I have had so many and so successful ones by one or at the most two applications of the blunt or of the sharp curette, that I have ceased to keep any record of them. But I now come to a series of stubborn cases which have puzzled me not a little, and which led me to think that I have much to learn on the subject of intra-uterine vegetations.

About two years ago the sister of a distinguished physician was brought to me from a distance on account of terrible floodings. She was about fifty years old, a widow for over twenty

years, of a florid complexion and full habit, and with a sluggish circulation, dependent, as I believe, on some obscure cardiac affection. She began to bleed about two years before, and kept losing more and more, until the loss had become alarming. Accompanied by her physician and by a friend, she was carried on a litter, after having her vagina very firmly plugged. I found the cervix large and flabby, the os unusually patulous and jagged, the womb retroflexed and measuring not quite four inches. So impressed was I with the conviction that she had a polypus, that I at once put in several tents, and invited my friend Dr. John Ashhurst to aid me in its removal. Nothing was, however, found besides a very large number of vegetations, so large that I began to fear the case was one of diffused sarcoma, and submitted them to two excellent microscopists, who independently concurred in pronouncing them benign and the production of an endometritis hyperplastica. Owing to exhaustion from these great losses of blood, this lady's convalescence was slow; but she ultimately got well enough to go home. She saw no monthlies for nigh three months; they then began to return, and more and more abundantly, until I was obliged to interfere with the curette and remove a number of growths, but not so many as at first. As after the preceding operation, she became much better, and stayed so for some months. Then, in spite of repeated applications of nitric acid made to the cavity by means of a platinum tube; in spite of many intra-uterine injections of iodine, of carbolic acid and of iron; in spite of the use of several pieces of the silver nitrate, the bleedings began to return, and I shall very soon be obliged to use the curette. Having lately complained of failing eyesight, I sent her last week to Dr. S. D. Risley, who finds that she has several retinal clots, and I cannot but think that this hemorrhagic tendency may throw some light on the case.

Two other analogous cases have come to my attention, but unfortunately in neither were the vegetations examined by the microscope. Yet from the macroscopic appearance I should say that they were simply hyperplastic growths. One was a patient of Dr. J. R. Chadwick, of Boston. He had repeatedly

used the curette in her case, and as often had removed some vegetations. Last month, while on a visit to this city, her catamenia came on with alarming profusion, and she sent for me. Finding great difficulty in checking them, I used the blunt curette and removed a number of vegetations, but to no purpose. Several tents were therefore crowded in, and upon their removal I was able, with the finger, freely to examine the endometrium. Other vegetations being found, I then used the sharp curette, and thus succeeded in stopping the bleeding; but she was not cured, as I have since learned from Dr. Chadwick.

The other case was a patient of my honored friend Dr. J. C. Reeve, of Dayton, Ohio. He had in vain repeatedly used the curette and every known intra-uterine application for the cure of a menorrhagia, and finally he sent her to me. I used the blunt curette three times, followed each time by the sharp one, made two intra-uterine applications of nitric acid, and several injections of iodine, and yet I fear that she has not been cured.

Now, this lady was quite stout, and the two preceding ones were of a full habit and of florid complexion. Excess of pabulum, therefore, may have something to do with the liability of these vegetations to return. Yet I cannot but fear that they may yet prove recurrent *per se*, and therefore quasi-malignant; but time alone will show this. Other physicians have been likewise perplexed. At a meeting of the Obstetrical Society of Boston,\* Dr. Chadwick referred to one of his obstinate cases, and said that "Dr. Fitz had been unable to pronounce between these modified conditions of the mucous membrane and sarcoma in one or two specimens which he had sent him." Dr. Lyman stated that in one case the mass of proliferated mucous membrane "was different from anything he had before seen;" while Dr. Sinclair reported a case which he had been obliged to scrape three times within a year, before a cure was obtained.

(b) VILLOUS DEGENERATION OF THE ENDOMETRIUM.

Another form of uterine vegetations occasionally met with is

\**Boston Medical and Surgical Journal*, Oct. 10, 1878, p. 469.

a villous degeneration of the lining membrane of the womb. To me this condition is yet a pathological puzzle, and in my ignorance I am compelled to resort to cases for illustration.

CASE 1.—On April 7, 1877, I was asked to see Miss —, a somewhat corpulent maiden lady of fifty odd. Five years before, she had ceased to menstruate; but one year ago she began to loose blood from the womb at irregular intervals, and especially after riding in her carriage. For six months of the past year she had been attended by a very clever homœopathic physician, who, however, limited himself to a constitutional treatment. The rest of the time she was in the hands of a female practitioner, who treated her locally for "ulceration of the womb." I found the cervix vaginal and perfectly free from any vestige of disease, the womb movable and natural in position, but very nearly three inches in length. She had occasional hemorrhages, and was daily using two napkins to absorb a pinkish and an inodorous discharge. The os externum was too small to admit a curette, and therefore my treatment was an imperfect one until the 25th inst., when I prevailed upon her to let me use a tent. The next day I scraped out the uterine cavity with a blunt curette, removed a small number of gray fragments looking like boiled tapioca, and painted the endometrium with a saturated tincture of iodine. The discharge was reduced to the merest leucorrhœa, and, after paying her several visits, on June 7 I pronounced her cured and ceased my attendance. But on July 19 I was sent for, to learn that the pink discharge was beginning to return, and that a slight hemorrhage had taken place. The os uteri being now larger, I began a series of scrapings, both with the blunt and the sharp curette, and made intra-uterine injections of a saturated tincture of iodine, and of strong solutions of the silver nitrate, of chromic acid, of tannin, and of the iron subsulphate.

The curetting and the applications did her much good for the time being, but whenever she made me desist from local treatment—for she could not bear much pain—the discharge began to return. Once I slipped in three tents and examined the uterine cavity with my finger. I found nothing but a num-

ber of isolated rough points, which I scraped away with the sharp curette, and then swabbed out the cavity with fuming nitric acid. Several times have I pushed into the uterine cavity a good-sized piece of the solid silver nitrate, but all without avail.

Getting alarmed at the return of the vegetations, I submitted separate specimens to Drs. J. Tyson and Carl Seiler. The former, under the date of October 15, 1877, wrote to me that "The fragments are those of a papilloma (Zotten-Krebs) or villous cancer of the uterus." In this decision Dr. Seiler also concurred, after an independent examination of entirely different fragments.

One day in February, 1878, after a truce of about three weeks, another hemorrhage took place. I now found the os almost patulous enough to admit my finger, and when I introduced a small glass speculum into the vagina, the pressure of it upon the lower portion of the womb squeezed out a number of brain-like vegetations of unusual size. The curette and intra uterine injections were of course again resumed, but in addition full doses of arsenic were given; and so the treatment went on until last July, when, upon giving an unfavorable prognosis, my patient concluded that I could not cure her, and very wisely discharged me. I have since learned that she is steadily failing.

CASE 2.—On March 28, 1878, I was called by a medical friend to see a lady of full habit, who was about 45 years old. For a year she had been bleeding very desperately at her monthly periods, and she had now been losing blood for three weeks. I found a very ragged os, angry-looking enough to have been mistaken for a cancer, and large enough to admit the finger half-way up the cervix. The womb was very bulky, and gave a measurement of four inches. So much blood escaped on the withdrawal of the sound that the diagnosis of polypus was unhesitatingly made.

Four or five tents were accordingly crowded in, and the next day I went fully prepared to remove the growth. The patient was etherized, and upon the withdrawal of the tents I was able to explore very carefully the whole uterine cavity. To my sur-

prise, no polypus was present, but in its place a large number of vegetations. These I removed with the polypus-forceps and with the dull and the sharp curette. Most of them came from the left cornu, and they were so numerous that they must have filled a dessert-spoon. The endometrium was next painted over with a saturated tincture of iodine. No bad effects followed, and she became very much better in every respect.

This improvement, however, did not last very long, and I was again compelled to use the curette on June 19, and yet again on July 5, removing on each occasion large quantities of vegetations.

At this last visit I swabbed out the uterine cavity with fuming nitric acid. The benefit this time was more lasting; for six months elapsed before my services were again needed.

CASE 3.—Late in the night, over a year ago, I was summoned to see the mother of a medical friend. She was 65 years old, and, like the preceding cases, of full habit, but in splendid health. Her monthlies used to be very abundant, but they ceased at the age of fifty, and she had not since lost a drop of blood per vaginam. But during this day she felt her old menstrual pains, and at night, without other premonition, a profuse flow came on. I contented myself with giving her some doses of ergot, and two days later made a thorough examination.

The womb was movable and gave a measurement of three inches. The cervix showed no signs of disease, but the os was larger than it should have been at that time of life, and it gave egress to a fluid like the menses in color and in smell. The blunt curette being introduced brought nothing away; so a sharp one was used, which scraped off one hard mass as large as a bean, and numerous other tapioca-like growths of the size of a pea, which very nearly filled the bowl of a tablespoon. Since that operation she has not lost a drop of blood from the womb, has had no leucorrhœa whatever, and remains in apparently perfect health.

The high social standing of this lady, and her near relationship to one of our profession, made the question of malignancy

one of great importance. On the other hand, the diagnosis of villous cancer and the constant return of the vegetations in my first case, and their large number with three returns in my second case, made me watch all with intense interest. Specimens of the vegetations of each one were submitted to Dr. W. F. Norris, who was kind enough to examine them for me with the utmost care, and the following is his report :

"26TH JUNE, 1878.

"DEAR DOCTOR.—The specimens which you submitted to me are all essentially alike in structure.

"They consist of ovoid masses covered with clotted blood. After the removal of the latter, they appear of an ash-gray color, covered with minute rounded prominences, and average about seven mm. in length by five mm. in breadth.

"Some were examined while fresh by tearing, and without the addition of any reagent; others were treated with a one-quarter per cent. solution of silver nitrate, and others, again, hardened in picric acid. Of the latter numerous sections were made, which showed everywhere a series of thin-walled blood-vessels, arranged in loops, covered by a columnar epithelium.

"Those treated with silver nitrate presented over their entire surface a net-work of delicate black lines, including irregularly polygonal spaces due to the well-known action of this agent in intercellular material.

"With one or two exceptions, all the ovoid masses were, when fresh, very soft, and readily crushed between the fingers. Those which were harder were similar in structure to the softer ones above described, but owed their hardness to blood-clots which lay in the interpapillary interstices and which were undergoing absorption and organization. The surrounding tissues, as well as the clot itself, were tinted with various shades of decomposing hæmatin, and in the clot itself were numerous single and many nucleated cells entangled in meshes of coagulated fibrin. There was nowhere any trace of the fibro-muscular walls of the uterus.

"I consider the growth to be a papilloma. As regards the question of malignancy, its epithelial nature, of course, gives it at once an appearance of relationship to the epithelial cancers; but this question, I think, must be decided by a section of the growth *in situ*, and the observation whether or not it has a tendency to infiltrate and spread in the proper uterine walls.

Yours, truly,

"1526 Locust Street."

"WM. F. NORRIS."

Very fortunately, I have not yet had the opportunity of making a section of such a growth *in situ*, but Dr. W. Lusk, of New

York, reports a case\* which died from progressive cachexia, and in which he secured an autopsy. The examination of the womb was made by that excellent pathologist, Dr. M. D. Mann, who pronounced the disease to be "villous degeneration of the uterine mucous membrane," and adds, "The specimen is one of extreme interest both clinically and pathologically, no such case having been described by any author with whom I am familiar."

An analogous case happened in the practice of Dr. Edwin B. Bertolet, of Oley, Pa., to whom I am indebted for the following details :

"During the last three years of her life, the lady had constant bleeding from the womb, at times amounting to an alarming hemorrhage. This occurred several times while the patient was seated at the dinner table. She had sacral pains and uterine tormina, which usually ended in the discharge of clots. Six months before her death she called in Dr. Bertolet, who found the uterine cavity measuring four and a half inches in length. The cervix was free from disease, but the os was patulous, and the endometrium studded with growths which bled freely when touched with the sound. As no treatment proved availing, Dr. P. B. Breinig, of Bethlehem, was called in on January 9, 1878. At this time the uterine cavity measured five and a quarter inches in length. The endometrium was scraped with the curette, and about a tablespoonful of the growths was removed. These were submitted to the *Committee on Morbid Growths* of the Pathological Society of Philadelphia, who 'were inclined to consider it a cystic papillary adenoma.'† The patient was greatly relieved by the operation. The uterine tormina ceased, and the blood was replaced by a serous discharge, which soiled two napkins daily. But she gradually failed, and died two months after the operation. The post mortem revealed an irregularly shaped womb of the size of the foetal head, the enlargement being principally at the left cornu. The endometrium contained pus, and was covered with shaggy masses which penetrated into the parenchymatous structures. The pelvic viscera were matted together by old and new adhesions, and a few of the mesenteric glands were enlarged. All the other organs were normal."

Winckel found a womb in the Dresden Museum, unfortunately without clinical history, which he and Dr. Hirschfeld carefully examined, and which, from the description and the beautiful illustration accompanying it, must have been analo-

\**American Journal of Obstetrics*, January, 1878, p. 133.

†*Philadelphia Medical Times*, April, 1878, p. 354.

gous to my first case of this group.\* Winckel, from the microscopic and macroscopic examination, called it an *adenoma papillosum diffusum partim polyposum corporis uteri*. Hirschfeld, who confined himself strictly to its histological aspects, gave it the name of cylinder-celled adenoma (*Cylinderzellenadenom*). This specimen led Winckel to think that a case which he had treated at Rostock, and to which he had given an off-hand diagnosis of sarcoma, must have been one of these villous growths. In spite of treatment, the hemorrhagic growth returned, but owing to his removal from Rostock to Dresden, he lost sight of the case. Later, he saw a case in which the disease began within the cervical canal, and, despite all treatment, rapidly descended. In six weeks' time it had invaded not only the vaginal portion, but the vagina as well. \*As the woman now ceased to attend his clinic, he concluded that the issue was a fatal one. Referring to this case, he says, "The rapidity of return, and the great extent of surface attacked, show that such adenomata are not much behind the most malignant new formations." To this group of adenomata belong two cases reported by Matthews Duncan.† In each there was a return of the growth in the uterine cavity, and the general health of each was failing at the time when his paper was read.

Villous cancer of the bladder is not an uncommon disease; but of the cavity of the womb it is either extremely rare, or it has not been recognized. Apart from my cases, and from those reported by Drs. Lusk and Bertolet, and perhaps the two of Dr. Duncan's, I know of none with clinical histories. I do not think that the pathological status of these villous growths has yet been definitely settled, and the field remains open to future investigators. The careful autopsy of Dr. Lusk's case, the fatal issue of Dr. Bertolet's case, and the unequivocal history of my first case, point to forms of a malignant type. But in my second case there is no appearance of progressive cachexia: on the contrary, the lady has greatly improved in health;

\**Die Pathologie der Weiblichen Sexual-Organen*, Leipsic, Lieff. ii., p. 40.

†*Obstetrical Journal of Great Britain and Ireland*, November, 1873, p. 497.

while, as regards my third case, fourteen months have now elapsed since the use of the curette, and yet there have been no uterine symptoms whatever, and no impairment of her splendid physique.

With our present light the prognosis of villous growths of the endometrium must of course be a guarded one, and yet not wholly unfavorable. Winckel reports a cure of one, springing, however, from the fore-lip of the cervix; and Professor Kocker, of Berne, avers "that papilloma vesicæ, in the female, has been frequently treated by operative proceedings (through the dilated urethra) and brought to a satisfactory conclusion, and, indeed, been healed."\* He further reports a cure of this disease in the male bladder, by opening the urethra on a grooved staff, and then scraping off the growth by a long sharp scoop, bent at an angle. Another case of villous cancer of the female bladder is published by Dr. W. Alexander, who in October, 1877, and in the following May, scraped off the growth with apparently good results;† but time enough has not yet elapsed to pronounce the cure a permanent one. Bryant, on the other hand, asserts that "There is no cure for this affection.....The disease usually destroys life in about two years."‡

(c) SARCOMATOUS DEGENERATION OF THE ENDOMETRIUM.

To make this lesson more complete, some reference must be made to sarcomatous degeneration of the endometrium. And I wish here to be understood as not referring to sarcoma of the parenchyma, which is essentially fibroid in its structure, circumscribed in its growth, and which assumes a tumor-like form from the outset; but to sarcoma of the sub-mucous connective tissue, which begins as a diffuse proliferation and grows in the direction of least resistance, viz., into the uterine cavity, and involves the endometrium. It may, however, secondarily invade the wall of the uterus, either by destructive pressure or

\**British and Foreign Medico-Chirurgical Review*, July, 1876, p. 210, from *Centralblatt für Chirurgie*, April 1, 1876.

†*Lancet*, August 17, 1878, p. 209.

‡*Surgery*, p. 505.

by infiltration ; but this happens only in its last stages. It consists microscopically of a new growth of small round cells, which, as Jenks, who has written an excellent paper on the subject, has observed,\* "are always separated the one from the other by a certain amount of intercellular substance, and are arranged after no definite type, never packed together in alveoli, as is the case in cancer."

Irregular and profuse menstruation, and intermenstrual leucorrhœa, gradually becoming more and more fetid, are the first symptoms ; then pain, when the mass has grown large enough to arouse the resentment of the womb and awaken its contractions. The curette will cause considerable hemorrhage and bring away many fragments which present the appearance of medullary cancer ; but a microscopic examination will infallibly determine their character. If the cervical canal be now dilated and the finger passed in, the uterine cavity will be found filled by an irregular, ragged, and diffuse growth, without a capsule, which breaks down under the finger. Sometimes the womb, irritated by the growing mass into powerful contractions, will force a portion of it into the vagina. It will then assume the form of a polypus, the pedicle of which will be the part constricted by the os uteri. By this constriction the circulation of the protruded portion becomes impeded. It therefore disintegrates, bleeds profusely, and gives off a very fetid smell. Its diffuse growth, absence of capsule, friability, placenta-like structure to the feel, and, later, its excessive fetor, stamp it with an almost unquestionable macroscopic individuality.

The prognosis is an extremely unfavorable one, but the fatal issue is greatly postponed by operative measures. The treatment consists in repeated removals of the growth as fast as it is renewed. This is best accomplished by crushing off the polypoid portion by the *écraseur*, by scraping its base with a sharp curette, and by cauterizing it either by the hot iron or by fuming nitric acid.

\**American Supplement to Obstetric Journal of Great Britain*, etc., vol. i. p. 116.

I have met with this disease in one typical case :

M. D., aged 45, was, according to her own account, well and regular until June, 1871, when she "flooded" continuously for four weeks. July 4, she called in a physician, who removed a tumor from her vagina as large as her fist. She was now free from hemorrhage until Christmas, when flooding again began. As nothing checked this, a vaginal examination was made and another tumor found. It was removed by the *écraseur* in February, 1872, and again a third one in the following April. The following June she was first seen by me, and I found a polypoid tumor as large as a hen's egg protruding from the os uteri. It had no pedicle other than the constriction caused by the os, and seemed attached to the whole left lateral surface of the uterine cavity as far as the finger could reach. Being very friable, it broke down under traction, and was, therefore, removed (July 1) in fragments by fenestrated forceps, curved scissors, and by scraping the uterine walls with the curette and the finger-nail. For nigh two months succeeding the operation, the patient, being put on iron and arsenic, improved astonishingly, and I flattered myself that she was cured ; but late in August hemorrhage again returned. In spite, now, of the use of the curette, of intra-uterine applications of carbolic acid, of the silver nitrate, of tincture of iodine, and of nitric acid, repeated alternately every week after the operation, the growth was slowly reproduced. November 2, she passed a large fragment, after severe expulsive pains. On the succeeding day the os was found blocked up by an exceedingly offensive mass, which was removed in fragments and sent to my friend Dr. William F. Jenks for examination. He found the growth to be a round-celled sarcoma. The uterine cavity seemed now to be wholly invaded. On the 16th another large mass was expelled, after very severe expulsive pains. She now steadily grew worse, and discontinued her attendance on the clinic of the University of Pennsylvania. Subsequently it was learned that, after being greatly reduced by hemorrhages, and after suffering more or less from severe uterine colics, she died early in 1873.

Another very analogous case I have had verified by microscopic examination ; but I have mislaid my notes, and cannot remember the details. Two years ago I am sure that I saw a third case, a patient of Dr. E. L. Evans, and a lineal descendant of one of our Hessian prisoners who settled down on the Neck after the close of the Revolution. She was over sixty, and had been losing blood—a loss which she at first welcomed as a token of returning youth, but she soon changed her mind and sent for Dr. Evans. He discovered the tumor and asked

me to see her. I found a large friable and non-capsulated tumor, exactly as in my first case, protruding from the os. It broke down under traction, and I wrenched off fragment after fragment with a polypus-forceps until its base was reached, which seemed to cover also the whole left lateral surface of the endometrium. This I scraped smooth, and then cauterized with a saturated tincture of iodine which happened to be in my bag. I gave a very unfavorable prognosis; and yet no hemorrhage has since returned, and the woman is apparently now in perfect health. Very unfortunately, I lost the fragments carried away for microscopic examination; and yet I cannot help thinking that it was an undoubted case of round-celled sarcoma. If so, it will sooner or later return.

## LESSON XIX.

### *Polypus of the Womb.*

FOR all practical purposes, a uterine polypus may be defined as a stalked tumor, hanging from the mucous surface of the womb, and partaking of the same histological characteristics as the stroma from which it springs. If it grows from the lining membrane, it will be mucous; if from the sub-

FIG. 66.



FIBROID POLYPUS WHICH HAS BEEN EXTRUDED FROM THE CAVITY OF THE UTERUS, THE TRIANGULAR SHAPE OF WHICH IT RETAINS. (BARNES.)

mucous cellular tissue, it will be fibroid; if from the muscular fibres, it will be myomatous; and if it starts in the glands, as retention cysts, it will form the variety known as the glandular polypus.

Polypi usually occur singly, but I have removed two from the uterine cavity, which, like gall stones, were flattened on the surface of impact.

The most common symptom evoked by a polypus is hemorrhage; but the amount bears no proportion to the size of the tumor. Sir Charles Locock\* reports the death of a woman from uterine hemorrhage, caused by a polypus not larger than a pea. On the other hand, I have seen no excessive hemorrhage from one as large as an apple. At times the menstrual flux appears at the usual period, but is profuse; more frequently the interval shortens; then, again, blood may dribble away more or less all the time. Other symptoms are leucorrhœa, vomiting, and expulsive pains, the last two as the result of uterine distention.

As to the cause of polypus, it is evidently due to perverted nutrition, to an increased constructive energy in the womb, for these are hyperlastic growths like polypi in the nose. Any thing that will cause and keep up an irritation of the uterine structures is competent to create these tumors. What is the most frequent cause of nasal polypus? Catarrh of the Schneiderian membrane. In the same manner a similar condition in the womb, a catarrh of its lining membrane, will produce a like result. Sterility and single life are pre-eminent factors in the production of these tumors. My experience is that you will find them to be more frequently the cause than any other factor. But why should they produce them? you will ask. Because the irritation of menstruation continues without any break. Nature never intends that the monthly congestion should go on indefinitely, but she expects such interruptions to it as gestation and lactation usually bring. Another cause, closely relating to the preceding, is perverted sexual relations, which excite and irritate without satisfying. In short, uterine polypi and uterine vegetations start from pretty much the same causes.

The polypus ordinarily met with is the small glandular variety, which appears to consist of one ovule or more of Naboth.

\* *Medico-Chirurgical Transactions*, vol. xxxi., p. 173.

In size it rarely exceeds a marrow-fat pea, and is found just within the os externum, or hanging out of it. Since it retreats before the finger into the cervical canal, and thus escapes detection, a speculum should always be used. A bivalve is here the best, because, by making the os gape widely open, it may reveal one so high up in the canal as to be beyond the reach of the finger. From its soft and slippery nature, it eludes the grasp of any ordinary forceps, and, therefore, should be either snipped off with a pair of scissors, or twisted off with a fenestrated forceps (Fig. 67.) Any tendency to hemorrhage can be controlled by an application to the stump of fuming nitric acid, or of a red-hot knitting needle.

FIG. 67.



Polypi that start from the uterine cavity grow to a much larger size, and, when first discovered by the physician, are rarely smaller than a hickory nut. Varying much in size, they will be found either wholly in the vagina, or partly in the vagina and womb, or wholly within the uterine cavity. Whenever they hang loosely in the vagina, or dangle partly out of the dilated os, like the clapper of a bell, there is no difficulty or no hazard in their removal. They can often be twisted off, but no great force must be used for this purpose, lest the root of the stalk should wrench off a portion of the uterine wall. They can be snipped off with a pair of scissors curved on the flat; or the stalk can be first put on the stretch, and then scratched through with the nicked nail of the index finger, just as a blunt knife will sever the strands of a rope when tightly stretched. The safest, and therefore the best plan, is, however, to noose the pedicle with the loop of the *écraseur*. Should the polypus prove so large as to fill up and greatly distend the vagina, it may be impos-

sible to reach the pedicle. In such a case different plans may be pursued, but the tumor must be got away by hook or by crook. One method is to cut off as large a slice as possible by a very strong wire loop slipped up as high as it will go. On the removal of this slice the rest of the polypus will descend still lower, so that at a second or a third trial the pedicle will be reached. The risk from hemorrhage is not very great, even when the tumor is of large bulk. Before the *écraseur* came into use, I once assisted at an operation in which a very large polypus was removed with a curved pair of scissors. Although the pedicle was not reached until two large slices had been cut off, each after an interval of a week, no hemorrhage requiring a tampon took place.

Another plan consists in seizing the growth with the midwifery forceps, or by two very strong volsellæ, and in dragging it outside of the vulva. The wire loop of an *écraseur* can then be thrown around the pedicle. If this instrument is not attainable, the pedicle can be sawed off by a fine but strong piece of hempen twine, in the same manner as a bar of soap is often cut into uniform pieces. If knotted at two or three points, the twine will sometimes cut better. Either method reduces the risk of hemorrhage to a minimum. As these very large tumors often spring from the cervix, care must be taken to follow down the reflected fold of the vagina upon the cervix, so as not to apply the twine or the wire so high up as to include a portion of Douglas's pouch. One hint in regard to the wire *écraseur*:

FIG. 68.



WIRE ÉCRASEUR.

Whenever no great power is needed to cut through the noosed pedicle, each end of the loop may be fastened to the traveling button. But when the object to be cut off is large, the one end of the loop should be fastened (as represented in Figure 68) to one of the immovable bars projecting from the shaft near the

handle, and the other end twisted around the traveling button. Since only one end of the loop now travels, the movement is slower, but the half-sawing and half-crushing action thus gained greatly diminishes the resistance, increases the power, and lessens the chance of having the wire snap. The only objections to this adjustment are the slowness of the movement, and the fact that the button will sometimes come home before the stalk has been wholly cut through.

A few words about the wire to be used will not come amiss. From long experience, having first used ordinary annealed wire for this purpose, which often annoyed me by snapping at the critical moment, I have finally been led to use exclusively piano-forte wire for the *écraseur*. For years I have used nothing else than this excellent steel wire, made for the high notes of the piano. You will need wire as strong as you can get it, for you will be astonished at the resistance it meets in cutting through the structures of a fibroid polypus.

Inversion of the womb being a very rare accident, is for this reason very liable to be mistaken for a polypus. When a polypus, partly projecting from the uterine cavity into the vagina, has contracted adhesions with the margin of the os, the diagnosis between it and an inversion of the womb may be very difficult. Sometimes the womb is partly inverted by a polypus, and the inverted portion may be mistaken for the pedicle. To make out this diagnosis, remember, first, that, unless directly after labor, the tumor of an inversion is scarcely larger than the non-gravid womb. Hence, a voluminous tumor distending the vagina cannot be simply an inverted womb. Next, pass up the sound, and if it indicates a length of two inches and a-half, or more, beyond the edge of the os, the tumor is not an inverted womb. If it cannot be made to enter more than an inch, the womb is probably partly inverted. If no cervix and no uterine cavity can be discovered, and the tumor is not larger than the non-gravid womb, it is very likely to prove an inversion of the womb. To confirm the diagnosis, give ether, pass up the index finger, or even half of the hand, into the rectum, and try to reach above the tumor. If inversion be partial, a cup-like de-

pression, like the bottom of a bottle, will be found where the fundal vault should be. If inversion be complete, the womb will be absent from its accustomed site. Sometimes, however, in spite of these methods, the diagnosis will still be doubtful. Stab now the tumor with an acupuncture needle, and if the woman flinches, it is the womb, and not a polypus, for the latter is not sensitive. Again, to make sure of no error in this matter, withhold all anæsthetics, and tighten the loop of the *écraseur* very slowly. If now the woman complains of great pain, some portion of the womb has been noosed. Hence, in doubtful cases, the inference is plain never to use anæsthetics while the pedicle is being cut through.

When a polypus, starting from the fundus, contracts adhesions with the os, these must be broken up by the fingers, or cut through with the scissors, before the true pedicle can be reached. The *tapiroid* cervix, adverted to under the subject of prolapse, may be mistaken for a polypus. But as the remedy in each is the same, no harm will accrue from a false diagnosis. The tale told by the existence of an os externum, and of a uterine cavity, should never permit a completely prolapsed womb to be mistaken for a polypus.

The intra-uterine polypi are by no means so easily disposed of as the other two varieties. The first difficulty in the way is to discover the growth; for it may be so small as not to enlarge the womb appreciably; the cervix may not be effaced, or the os dilated; or the sound may impinge upon the polypus and deceive the physician by a false measurement. Since the most prominent symptom is hemorrhage, the first thing to be done, when this persists, is to explore the uterine cavity with the finger. For this purpose the canal of the cervix must be dilated by tents, and in the manner previously described; due heed being paid to the caution of effecting this dilatation, if possible, with but one batch of tents. This method of gaining the cavity of the uterus will not, however, always be necessary, and here is a hint worth remembering. During the catamenial flux, the temporary increase in the bulk of the tumor, through congestion, together with the resulting labor-like pains, so opens up

the canal as often to permit the passage of the finger. Some polypi have actually appeared in the vagina during the period, and have afterwards been withdrawn into the uterine cavity, so as to escape detection at a subsequent examination. This fact should be explained to the woman, else her innate feeling of delicacy would cause her to shrink from an examination at such a time.

An intra-uterine polypus having been discovered, how is it to be removed? By adopting the following plan, somewhat modified from that of Dr. Kidd, of Dublin, I have not yet been foiled: A woman is first etherized, and afterwards brought in the dorsal decubitus to the edge of the bed, where each leg is supported by an assistant. The operator now seizes the anterior lip of the os with a volsella, drags the womb down as low as possible, and then entrusts the instrument to one assistant, with the injunction to hold it steady. Meantime the other assistant renders efficient aid by keeping up a firm supra-pubic pressure upon the fundus. The operator next introduces the index finger of his left hand into the uterine cavity, and by it as a guide seizes hold of the polypus with a second volsella. He now tries to twist the tumor off, but, for reasons previously given, with no great force. Failing in this, he, in order to gain more room in the vagina, removes the first volsella, and then slips the wire loop of an *écraseur* over the handles of the second. This volsella is now put in the hands of an assistant, who makes firm downward traction with it, while the operator proceeds to slide the loop up beyond its claws and over the polypus. The easiest way to do this, as I have found by much experience, is to bend the loop back, and let the tip of the *écraseur* enter the womb first. The latter must be pushed up as far as it will go, and the wire then coaxed up by the fingers. When the pedicle is reached, the operator draws in the slack of the loop, but before tightening it, causes the traction of the volsella on the polypus to be relaxed, and then pushes up the fundus of the womb with the shaft of the *écraseur*. The object of this manœuvre is, not only to restore the vault, or fundus, of the womb if it has been partly inverted and cupped like the bottom of a bottle by the traction

on the polypus, but also to get the loop close up to the root of the pedicle. A few turns of the windlass in the handle of the *écraseur* now cut off the polypus, which, being still held by the volsella, is finally extracted (Fig. 69.) In like manner may the projecting portion of a submucoid fibroid be shaved off flush with the uterine wall. The remaining portion is then usually expelled later by the process of spontaneous enucleation. Should the physician not possess an *écraseur*, he may, perhaps, be able to scratch through the pedicle with the serrated nail of his index finger, or sever it either with a curved and probe-

FIG. 69.



OPERATION FOR REMOVING POLYPUS UTERI BY WIRE *ÉCRASEUR*.—THE POLYPUS IS SEIZED BY THE SECOND VOLSELLA AND NOOSED BY THE WIRE LOOP. (BARNES.)

pointed bistoury, or with a long pair of scissors curved on the flat. Sometimes he may be able to saw through the pedicle by a piece of twine carried up and worked by means of Gooch's double canula.

A polypus once removed never returns, but a second one,

dwarfed by the pressure of the first, may now rapidly grow. There is, however, that growth of peculiar malignancy—the round-celled sarcoma—often referred to by writers under the name of “recurrent fibroid,” which may deceive the physician into the impression that he is dealing with a simple polypus, and lead him to give, as I once did, a favorable prognosis. It bleeds very freely, emits a very bad odor, has no capsule, and feels much like placental tissue. The structure is so friable as to break down with very slight traction. The constriction of the portion protruding from the os gives the idea of a pedicle; yet on following it up with the finger, it will be found to have no circumscribed uterine attachment, but to lose itself in an analogous intra-uterine mass. It greatly resembles a polypus, but the diagnostic points laid down in my last lesson ought to keep you from making any mistakes in its recognition.

In the remaining brief moments of my hour with you, I purpose to consider in a few words some special points in the treatment of polypus. Suppose a woman is pregnant, and comes to your office with one dangling in the vagina, should you remove it or not? My advice is, during the early months of gestation, to let it alone; even if it be only a small one on the cervix, not larger than a pea, do not touch it, and more especially if it be large. The irritation following its removal may lead to a miscarriage. Wait for four months to elapse, when the vulnerability of the pregnant womb will be less, and then you can remove it with comparative safety. You should always remove them, because their presence may interfere with labor, or they may slough from injury received during labor. For the same reasons, if a polypus be first discovered during labor, put on the *écraseur* and remove it at once, before the child is born. But if after labor is over you discover a polypus within the uterine cavity, it is not easy to lay down an inflexible rule of procedure. I once lost a patient six weeks after labor, from the breaking down of such a tumor, and I should therefore prefer to attempt its immediate removal, if the operation promised to be an easy one; but this course is as yet mooted. There is another point which I shall illustrate in this way: A mar-

ried lady comes to you with a history of dysmenorrhœa and of sterility, which has lasted some ten or twelve years. She finds that the dysmenorrhœa has gone on increasing, and she lately has suffered from menorrhagia and has had to go to bed at the time of her monthlies. In such a case the first thing is to insist upon a thorough examination, and to jump to no conclusions arrived at by a mere digital exploration. For although, these symptoms generally point to a flexion of the womb, yet this is not always the case. For instance, in a case of this kind, I found that the patient had been for two years under the care of several practitioners, who had never made an intra-uterine examination. I first made a digital exploration, and found a retroversion rather than the flexion which I had expected to find. The womb was not much displaced, but sufficiently so to give rise to some of the symptoms. The sound went in without difficulty, and I therefore attributed the dysmenorrhœa to periodic thickening of the mucous membrane brought about by a long continued leucorrhœa, and reinforced by the congestion at the menstrual periods. I scarified the cervix with the bistoury, without relief. I enlarged the canal with the hysterotome, but no improvement was apparent. And only after dilating with sponge tents did I discover the cause, for on removing them the next day I found entangled in their meshes a beautiful fibrous polypus, as perfect in its form as an ear-drop. Acting like a ball-valve in the cervical canal, it had caused the dysmenorrhœa by impeding the discharge of the menstrual fluid, and the sterility by preventing the seminal fluid from entering the womb.

Thus you see that these little cervical tumors or the retention cysts of the glands of Naboth may escape careful exploration, and you must sometimes make a diagnosis by exclusion. To confirm your suspicion you should take a sponge tent as large as you can, and crowd it into the canal. A laminaria tent will not answer so well, as it has no meshes. If you choose, you can previously stretch open the os with a dilator. In removing the sponge the next day, you may be rewarded by finding, entangled in its meshes, some small polypus or some fungous growths.

Therefore, when such cases present themselves to your notice, carefully examine the sponge tent after you have withdrawn it; otherwise, you will be at a loss to explain the sudden improvement of your patient. On the other hand, I have twice seen an intra-uterine polypus of some size broken off from its attachment by the use of a fagot of tents, and left behind loose after their withdrawal. In each case, my surprise was great to find it come away without any traction.

In conclusion, whenever you discover a polypus, remove it in the best way you can, either whole or piecemeal; but remove it, if possible, by one operation, and not by repeated ones.

## LESSON XX.

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### *Fibroid Tumors of the Womb.*

FROM the numerous opportunities which this clinic affords, you have long since discovered that the womb is more subject to benign, and perhaps to malignant, growths, than any other viscus of the body. These organic affections it has been my purpose to take up in order; and I shall therefore end, this morning, with the fibroid tumor, as the last one of the series, and the one most commonly met with.

The statistics on this point would be very startling, were they not somewhat contradictory. Thus: Mr. Pollock, the late Curator of the Museum of St. George's Hospital in London, reports\* that, during a period of ten years, out of 583 women dying in the hospital of various diseases and at different ages, 39—seven per cent.—were found to have fibroid tumors of the womb; and that only one of these women was under the age of thirty. On the other hand, Bayle states† that these tumors are present in twenty per cent. of all women over thirty-five years old; and Klob,‡ that “undoubtedly forty per cent. of the uteri of females who die after the fiftieth year contain fibroid tumors.” Here is an apparent want of harmony; but it can, in a measure, be explained, if we consider, firstly, the fact established by these statistics, that age is a predisposing cause; and secondly, the circumstance that these averages are based upon varying ages—viz., upon different degrees of liability. Yet, while admitting the frequency of this disease, I believe that Bayle's and Klob's esti-

\**Lancet*, February 7, 1852, p. 155.

†*Liverpool Medico-Chirurgical Journal*, vol. i. p. 61.

‡*Pathological Anatomy of the Female Sexual Organs*, Am. ed., 1868, p. 177.

mates are entirely too high, and that their source of error lies in the promptness with which advice is sought by women thus afflicted. It is a curious fact that one or more of these fibroids will be found not only in the majority of middle-aged colored women, but—what is rare in whites—often enough in black and mulatto girls barely over twenty years of age. Between the two races there exist other marked differences, which you will do well to remember. Thus, ovarian disease and cancerous affections of the womb are extremely rare in colored women, while keloid growths are common enough.

Globular in form and dense in structure, the fibroid tumor varies in size from a boy's marble to a boulder taking up more room than a child at term, and weighing 30, 40, 60, and even 100 pounds. You will find it stated that it is seldom solitary, but gregarious,—two or more being usually present. From my own observations, however, from those of Fordyce Barker,\* and also from the statistics of Mr. Pollock,—who found that, out of 39 cases, 21 had single tumors,—I am inclined to think that single and multiple tumors are about equally divided. True, an examination during life will often convey the sensation of two or more tumors; but, after death, these will usually be found to be the irregular bosses or excrescences of a parent tumor. Whenever multiple, they are, as a rule, outgrowths from the peritoneal surface of the womb; and one of them then diverts the blood to itself, and increases in bulk far more rapidly than the other. Should two happen to start together from under the mucous lining of the womb, before long the stronger one will grow at the expense of its fellow, and may even obliterate it.

In its early history, a fibroid tumor exhibits a simple increase of nutritive activity at some point in the muscular layer of the uterine wall. To all intents, it is nothing more than an exaggerated development of unstriped muscular fibres, bound together, like those of the uterus, with connective tissue, and is in fact a *myoma*—that is, a muscular tumor. Its histological resemblance to the womb is so striking that, even after full de-

\* *Am. Med. Monthly*, 1857, p. 143.

velopment, a shred taken away from it may not be distinguishable, under the microscope, from one removed from the hypertrophied but unimplicated portion of the womb. If, however, from each a slice—a topographical section, as it were—be taken, and the structure of the one as a whole be compared with that of the other, in the uterus there will be seen a significant order in the disposition of its fibres; in the tumor, a purposeless jumble. Growing by an independent proliferation of its own cells, a fibroid neither infiltrates adjacent tissues nor becomes intimately incorporated with them; but, as it increases in bulk, simply displaces them by crowding them away on every side. The connection between it and the uterine stroma consists merely of delicate vascular filaments from its areolar capsule, which are so frail that, unless some inflammatory action has glued the tumor to its nest, it may be shelled out as easily as a ripe orange can be peeled out from its rind.

Unlike malignant growths, fibroid tumors very rarely begin in the cervix uteri, but at some point above the os internum; nor are they found in the anterior wall so frequently as in the posterior. Their growth, being in the direction of least resistance, is determined by the stratum of uterine tissue in which they happen to start. Thus, if one has its site in the centre of the uterine wall, it will bulge as well into the uterine as into the abdominal cavity; but more into the latter, because the resistance in that direction is less. If it starts from a point nearer to the mucous lining, it will project into the uterine cavity. Should it take its origin from the muscular layer under the peritoneal investment, it will grow out of the womb into the abdominal cavity. Now, since this accident of position gives variety to the symptoms of uterine fibroids, graduates the intensity of suffering, and modifies their prognosis and treatment, it has very appropriately been chosen as the basis of their classification—thus:

(a) *Subperitoneal, subserous, extra-uterine, or surface* fibroids are those outgrowths from the womb which project into the abdominal cavity and carry before them a fold of peritoneum.

(b) *Interstitial, parietal, intermediate, or intra-mural* fibroids

denote those which are imbedded in the uterine wall and are covered on all sides by uterine tissue.

(c) *Sub-mucous, intra-uterine, or cavity* fibroids are those ingrowths into the uterine cavity which start from that stratum of uterine tissue nearest to the mucous membrane and are covered by this membrane.

The prime cause of these growths is perhaps unknown; but they undoubtedly increase under the stimulus of undue uterine congestion. Sexual intercourse always aggravates their symptoms, and marriage is pretty sure to start the growth of one hitherto dormant. Sterility is alleged to be a predisposing cause, and so is single life,—because, from this point of view, both old maids and barren wives suffer from the congestion due to uninterrupted catamenia; and the latter, in addition, from that of unfruitful sexual excitement. I am, however, bound to say that the statistics on this point have been pushed to illegitimate conclusions, as you will see from the table on this blackboard:

	Fruitful.	Sterile.	Single.	Total.
Dupuytren.....	42	12	4	58
Malgaigne.....	11	10	4	25
West.....	36	7	7	50
McClintock.....	11	10	4	25
	<hr/> 100	<hr/> 39	<hr/> 19	<hr/> 158

While willing to concede that 19 old maids to every 158 women who have reached the prime of life is a larger proportion than that deducible from our own vital statistics, I am not so sure that it is much above European averages. Again, to my thinking, this table leaves open the question whether these tumors are the cause or the effect of sterility. For, mind, the heading "Fruitful" does not indicate the condition of fecundity, but simply one in contrast with that of absolute sterility: thus, out of West's 36 cases under this heading, only 16 had more than one pregnancy. It follows, then, that it is just as reasonable to attribute sterility as infecundity to the presence of these tumors; and, as a corollary to this, that sterility is more likely to be their effect than their cause.

The proliferation of connective-tissue cells, determined by the

congestions and extravasations of dysmenorrhœa, is advanced by some writers as a common cause. This opinion is strengthened by the striking fact that dysmenorrhœa is the frequent antecedent of chronic metritis,—a disease in which the structure of the thickened wall resembles so much that of a fibroid nodule that it is hardly possible to tell them apart. Further corroboration of the congestion-theory is gained by the circumstances that fibroids rarely appear before the age of thirty, and never before puberty; that the period of their greatest activity corresponds to the period of greatest menstrual activity; that after the menopause they usually cease to grow, and sometimes shrink away; and, finally, that during the catamenial flux they temporarily so increase in size as often to cause dysuria and other pelvic disturbances. Other causes of these tumors undoubtedly exist. After the stretching and weakening of uterine fibres by repeated pregnancies, these fibroids have been observed to start at points where the involution has been imperfect.

Subjective symptoms are not always evoked by the presence of a uterine fibroid, but when present are manifold, and yet not so diagnostic as to do more than to arouse a suspicion, confirmable only by a physical exploration. In the usual order of their sequence, menorrhagia will first appear or the intervals between the catamenia will shorten. Next will be added dysmenorrhœa and uterine colic; for during the menstrual flux the tumor swells up to such a bulk as to arouse the expulsive efforts of the womb. Metrorrhagia, alternated by a copious leucorrhœa, will then set in, and rapidly weaken the woman, who will now be worried by reflex uterine symptoms, such as nausea, headache, cardialgia, and palpitations. Finally, as the fibroid increases in size, there will follow a train of symptoms owing to the mechanical effects of pressure on the pelvic organs, vessels, and nerves. This consists of dysuria, vesical catarrh, difficult defecation, hemorrhoids, and of œdema, varices, and cramps of the lower extremities. The objective symptoms are far more distinctive, but, as they are modified by the site of the tumor, their consideration must be embodied in the history of each variety.

The *subperitoneal* fibroid grows more rapidly and attains

a greater bulk than either of the other two varieties. Although of stone-like hardness, and nodulous, it yet begets symptoms less exacting than those of the others, and rarely destroys life. Its attachment to the uterus, at first broad and sessile, often becomes constricted and elongated into a pedicle, long enough to permit great mobility in the cavity of the abdomen, almost independent of the movements of the uterus. Sometimes, through some rude fall or sudden succussion, the stalk snaps, and the fibroid will then roll about at large in the abdominal cavity. This severance from the womb is not followed by the death of the fibroid, for, like a loose cartilage in the knee-joint, or like a foetus escaped from a rent in the womb or from an extra-uterine cyst, it will retain its vitality indefinitely,—in one recorded case, as long as fifty years. Again, it will be found separated from the womb and attached to other organs. In such situations it is easily recognized as a parasite by its histological characters,—its uterine origin being plainly indicated by the presence of organic muscular fibre. This transplantation is brought about in two ways: By inflammation the peritoneal investment of the fibroid contracts adhesions to that of the abdominal wall, or to that of some movable viscus, as the bladder, intestines, or rectum, which, by its contractions, dilatations, or movements, so lengthens out the pedicle as to break it. Or the fibroid may glue itself to a fixed point, such as to some part of the pelvic tissues; and afterwards the condition of pregnancy or the growth of an intra-mural tumor, by causing an increase in the size of the uterus, puts the stalk to a stretch which it cannot bear. In one case, related by Simpson, the uterine contractions after labor broke the pedicle of a fibroid which had become attached to the walls of the abdomen during the last months of gestation.

If the pedicle of an extra-uterine fibroid be long and narrow, the uterus will not usually increase in size; indeed, it may take on atrophy. Upon external palpation, conjoined with a vaginal examination, there will be found in the cavity of the abdomen a movable tumor of apparently large size. But, in estimating the size of an abdominal tumor, remember that it always seems

larger than it really is, because the fingers grasp not only the tumor, but also a double thickness of the abdominal walls. Due allowance must be made for this; else, the fatter the woman the larger will the tumor be deemed. A good way of estimating the amount of this error is to pinch up a fold of the abdominal wall between the thumb and forefinger, and then to subtract its thickness from the apparent diameter of the tumor. Should the displacement of the tumor communicate motion to the handle of a sound passed up to the fundus, a uterine attachment may be safely inferred. When firmly grasped, its stony hardness and the absence of any sickening pain will exclude the idea of its being an enlarged ovary. As a rule, a subperitoneal fibroid does not distress the patient by any very irksome symptoms. A pedunculated one may lodge in the retro-uterine space and give rise to much pelvic disturbance; but, before attaining any very great bulk, it will sometimes work up out of the pelvic cavity and perch on the brim. Unless, then, the rectum or the bladder is inconveniently pressed upon, its discovery by the woman is almost always accidental—often enough not until it has grown to a size double that of the fist.

This patient, S. R., thirty-five years old, has been twelve years married without ever conceiving. Although her left lung contains a large cavity, and her strength is much spent by pulmonary hemorrhages, she has, in great alarm, come a distance of over a hundred miles to consult me about an abdominal tumor, which she, by the merest chance, discovered a week ago only. Several of you examined her in my private room, and found two nodulous growths squatting upon the surface of the womb, and one tumor, as large as an orange, floating about in the abdominal cavity. The uterine cavity measures three inches, but the additional half-inch is due to the two sessile out-growths, and not to the floating tumor, which is moored to the womb by a long and slender stalk. These facts were determined by the extreme mobility of the tumor, and by the distance to which it had to be pushed over to one side before any motion was imparted to the handle of the sound. To the gen-

tlemen who examined her it seemed strange that neither uterine nor pelvic symptoms had been awakened by the presence of such large foreign bodies. But the truth is that none of these tumors have crowded her pelvic organs; and, further, that her catamenia have been long suppressed by the constitutional effects of her lung-disease. On the other hand, I have hardly succeeded in convincing her that her chest-trouble is by far the more serious one; and she returns home to-day somewhat dissatisfied that my treatment is limited to arsenic, iron, and cod-liver oil.

This, gentlemen, is a very instructive case, because you will often meet with such in practice. Nothing unnerves a woman more than the discovery of a tumor in her abdomen. By sheer brooding I have seen one lady become insane, and another go into a decline. You must, however, be on your guard against imaginary tumors—phantom tumors, we call them—which women have a knack of finding in their abdomens. Whenever you are consulted for any kind of uterine fibroid, tell your patient, as I now tell this woman, that it never degenerates into cancer, and very rarely grows rapidly; that it is not an ovarian cyst, seldom proves fatal, and that, even when large, it is usually inconvenient only from its weight. Calm her fears with the hope that, after the climacteric, her tumor may shrink away, and perhaps wholly disappear. The stoppage of the menses in the woman before you will probably prevent any further increase in the bulk of her tumors; but then, on the other hand, it here imports extensive disease of the lungs. She leaves us, as you see, more light-hearted than when she first came, but still not altogether satisfied. Before another patient is admitted, let me point out to you one error in my treatment of this case: I ought to have prescribed a mental salve in the shape of some local application to the abdomen. Sick adults, like children, often need humoring; and he is often the most successful practitioner who knows when and how to humor.

When the fibroid is *interstitial*—that is, imbedded in the uterine wall—it will be attended by a hypertrophy of the whole uterus, but more especially of that portion of its muscular layer

which forms the nidus. There will also be a corresponding enlargement in the uterine blood-vessels, which will sometimes emit a sound very like the "placental bruit." The "placental bruit" of pregnancy is wrongly so-called, for the sound is owing less to the circulation in the placenta than to that in the enlarged uterine vessels at its site. The louder the bruit, then, heard over a fibroid tumor, the thicker is that layer of uterine wall between it and the ear—a fact of great importance in establishing a diagnosis. The mucous membrane becomes vividly red, and thickens, but never to the production of a decidual lining, as in intra- or extra-uterine foetations. Turgid veins traverse it, and a sanguinolent mucus bathes it. The uterine cavity, rendered tortuous and rigid by the bulging-in of a nodulous tumor, cannot usually be measured by the ordinary sound; but this flexible one of annealed silver will commonly adapt itself to the irregularities of the track, and pass up to the fundus. Should you be baffled in an exploration by either of these metallic sounds, you have in reserve a plan devised by Dr. Sims: A No. 6 bougie, stiffened by its wire and slightly curved at its tip, is fairly introduced within the os uteri; in order, now, that the wire should not further advance, its ring is firmly held by one hand, whilst with the other the bougie is pushed up into the cavity. By this manœuvre the vaginal portion only of the bougie is kept stiff, whilst the uterine portion, remaining pliant, moulds itself to the distorted uterine cavity. According to the size of the fibroid, the sound will then pass up a distance of from three to seven inches; but it should be used with great gentleness, as its passage is very likely to provoke a hemorrhage.

An interstitial fibroid may in time be forced toward either the abdominal or the uterine cavity, becoming extra- or intra-uterine, as the case may be. This is brought about by the continuous peristaltic action of the uterine walls, which in health serves to clear out the mucous and menstrual secretions. In this manner also an originally submucous fibroid may be converted into a true fibroid polypus. But it is doubtful whether, as has been contended, an imbedded fibroid ever becomes polypoid

in character without first losing its mucous or its muscular investment,—that is to say, without the process of spontaneous enucleation. The vitality of the interstitial fibroid is of a lower grade than that of the two other varieties; at least so it seems to me, from the way in which it behaves. It is less able to resist disturbing influences, and therefore the more frequently undergoes structural changes. It does not itself often inflame, but its serous investment is liable to attacks of inflammation, resulting sometimes in pelvic or even in general peritonitis. Bearing this in mind, you will not handle them roughly, nor needlessly dilate the cervical canal with tents. In my experience, these attacks of localized peritonitis have usually taken place during or just after the flow of the menses, and I have therefore thought that they could sometimes be attributed to the escape into the peritoneal cavity of the contents of a mature ovisac. For the bulk of the tumor may so disturb the relations of the pelvic organs as to make it impossible for the fimbriated extremity of the oviduct to grasp the ovary.

The functions of a womb encumbered by one of these fibroids become disordered. Pregnancy rarely takes place, and, when it does, usually ends in an early abortion. This small bottle contains a three-months embryo, which was expelled last week from a womb with a large fibroid in its posterior wall. Even after a clean delivery, the oozing of blood was so alarming as to demand the use of the tampon. The cause of this abortion was probably the unequal development of the uterine walls.

The earliest and most marked disturbances produced by this kind of fibroid are, however, in the catamenia. These grow more and more abundant; they will perhaps anticipate the natural time, or become metrorrhagic. Luckily, these symptoms are not so violent as in the next variety,—the submucous. This rule is, however, not a constant one, for here is an exception to it: This patient, Mrs. S., aged forty, and the mother of six children, is almost exsanguious from a ceaseless oozing of blood, which arises, I find, from a uterine fibroid as large as a child's head. Four years ago she miscarried, with much flooding, and she has since run the gauntlet of menorrhagic and me-

trorrhagic attacks, while the womb has been slowly and steadily increasing in size. The flexible sound passes up a distance of six inches in front of the tumor, which is therefore in the posterior wall, and its passage very decidedly increases the hemorrhage. The cervix is not effaced, but abruptly projects from a stony hard body; it feels much like the nipple of a breast greatly engorged with milk. The pelvic cavity seems blocked up by a dense and an immovable tumor, quite smooth in the vagina, but studded with nodules on its supra-pubic aspect. Defecation is difficult, and the efforts to empty the bladder painful and frequent. Upon auscultation, a very distinct murmur is audible over the whole uterine body. The length of the cervix, the great size of the tumor, and the bosses on its abdominal surface lead me to think that it is an interstitial fibroid, although the excessive catamenial flows and the intercurrent hemorrhages point rather to a submucous fibroid. To arrive at a correct diagnosis, and also to lessen the waste of blood, I shall dilate the cervical canal with sponge tents.

When the fibroid is *submucous*, the uterus enlarges as in pregnancy; the cervix becomes shortened and oftentimes effaced; while the os is likely to be found ring-like and patulous. Prominent among the symptoms will be pelvic pains and uterine colic. The functional disturbances will be greater, and the local congestion more intense, than in the preceding variety. Hemorrhage, and that in excess, will rarely be absent. The sound will penetrate to a depth greater, in proportion to the size of the tumor, than in the interstitial. In short, all its symptoms are commonly more exacting and more marked than those of the other two. But no great stress must be laid on their intensity as a means of diagnosis, for this relation does not always hold good. In fact, I have seen interstitial fibroids exhibit very urgent symptoms, whilst those of a submucous growth have been hardly appreciable.

Hitherto I have tried to point out the distinctive features of the three kinds of fibroids; but there are certain characteristics common to all. After they have attained the size of a hickory-nut, displacements of the womb follow. By reason of its in-

creased weight, not only will that organ descend bodily in the pelvis, and thus become prolapsed and even procident, but it will also bend over and double up, producing flexions of that wall on which the growth is seated. Antelexion causes hardly more than vesical irritation; but a retroflexed womb, by pressing upon the sacral nerves, the rectum, and the neck of the bladder, gives very great annoyance. Sometimes, as the tumor grows and begins to impinge either upon the sacrum or upon the symphysis pubis, the fundus of the womb is pushed over to the opposite side and the flexion is reversed. Thus, a fibroid nodule in the anterior wall first brings about an antelexion; but, its growth in that direction being repelled by the pubic bones, it pushes the fundus of the womb away from the symphysis and tilts it over into Douglas's cul-de-sac. At times the womb is so displaced that its os is with great difficulty reached. In such cases it will be usually found by squeezing the finger well up between the tumor and the pubic symphysis.

Like the gravid uterus after the fourth month—but being solid, by no means so uniformly—a fibroid, when too large for the pelvic cavity, tends to rise up above the brim, dragging the womb with it. The os will then be found higher up, but hardly ever beyond the reach of the finger. This elevation of the mass is followed by a great mitigation of all those symptoms produced by pressure. Sometimes, however, by neglect it becomes impacted, or else, by the irritation of confinement in the pelvic canal, it inflames and contracts adhesions to surrounding tissues. It cannot now ascend, but soon blocks up the pelvic canal; first crowding upon the neck of the bladder so as to render the introduction of the catheter difficult and even impossible; next, flattening the rectum to a ribbon, and otherwise producing the most formidable symptoms. The reasons why vesical disturbances precede those of the rectum, are that the bladder, being in the conjugate—viz., the shortest—diameter and abutting on the pubes, can hardly escape from being nipped; whereas the rectum not only lies in the oblique diameter and hugs closely the hollow of the sacrum, but also is further protected from pressure by the promontory.

The situation of a fibroid, rather than its size, will often modify the character of the symptoms. Thus, quite a small interstitial one at the internal os makes the cervix crescentic, the fibroid occupying the concavity. In these cases, the stricture thus induced causes sterility and distressing dysmenorrhœa, and usually the introduction of the sound will be found difficult. One of our patients thus afflicted promised to be here to-day; but she has not kept her word. Those of you who have examined her will recall the case. She is twenty-five years old, four years married, sterile, and was a martyr to agonizing attacks of dysmenorrhœa. I found the womb anteflexed, as it generally is in virgins and in nulliparous women, and the cervix hook-shaped from a fibroid not larger than a boy's marble, situated at its junction with the corpus. I never had a case in which the introduction of the sound gave me more trouble; indeed, it was only by straightening out the crooks and turns of the canal by very firm traction on the anterior lip with a tenaculum, that I succeeded at all. I anticipated a great deal of difficulty in treating this case; but, to my agreeable surprise, by dint of forcible dilatation, by repeated scarifications of the cervix, which was much congested, and by the local application of a saturated tincture of iodine, she is now greatly relieved.

During the period of menstrual life, nature rarely interferes with these fibroid tumors, and a spontaneous cure is then hardly to be expected. They slowly increase in bulk until the change of life, when they commonly stop growing, and either remain passive, or else begin to shrink, and perhaps disappear. Sometimes, without any explainable cause, arrest of growth or even retrogressive changes will take place long before the change of life. Occasionally a spontaneous cure is brought about by an ulceration of the internal uterine wall over the fibroid, which then either breaks down and comes away in débris and putrilage, or else, by uterine contractions, is shelled out entire from its capsule. Chiefly in the interstitial variety, an arrest of growth, and even atrophy, will at times take place by a disorderly deposit of lime, which, by breaking off the vascular fila-

ments of attachment, interferes with the nutrition of the fibroid. A uterine calculus thus formed either remains innocuous in its nest, or is squeezed out and expelled *per vaginam*—a phenomenon which greatly puzzled the older anatomists. Here is a womb containing three of these stones; its history is unfortunately unknown. Observe how loosely each one lies in its bed, and with what ease they could have been pried out. This calcareous degeneration, as a means of cure, is analogous to the cretaceous transformation of pulmonary tubercle. It happens chiefly in old subjects and in the smaller tumors. A calcified fibroid looks as if the calcareous particles were at first deposited at isolated spots, and had afterwards cohered at irregular points of contact. This gives it the rough appearance of a mulberry calculus; but it is much less dense. This calcareous degeneration is not true bone; for it possesses none of the osseous elements, not even cartilage-corpusele. It is the result of a chemical rather than of a physiological process, and resembles coral in appearance. The false ossifications of the economy—such, for instance, as the ossification of the arteries in old people—all point to enfeebled vitality. By analogy we may, therefore, attribute the cretaceous transformation of fibroids to their low grade of life. But that is not the only assignable reason; another one is, that the womb and its contents are very prone to this curious change of structure. Cases are on record in which the walls of that organ have become incrustated with lime, or even converted into a bony shell. A fœtus detained by missed labor has been found petrified; and you will not practice long without meeting with a placenta studded with gritty particles of chalk, sometimes in patches so extensive as to cause the death of the child by impeding the circulation of the blood.

In certain rare cases, uterine tumors primarily fibroid will take on a cystic transformation; in other words, a solid growth becomes honeycombed with cyst-like cavities, each cyst containing fatty debris and liquefied tissue. These fibro-cystic tumors affect that portion of the corpus uteri which is not covered with peritoneum, although this is not their invariable site. There

they grow very rapidly, dissecting up the peritoneum from off the pelvic organs and abdominal walls, and often attain an immense size. From their physical and clinical resemblance to cystic disease of the ovaries, they are of special interest to the ovariologist.

There is yet another very interesting termination to these fibroids, which must not be overlooked. During pregnancy they receive more blood, and consequently grow more rapidly, than at other times. Now, trees of slow growth have a tough and hard fibre, which resists atmospheric action; whereas the wood of quick growers is soft, porous, and liable to decay. In like manner these tumors, becoming pulpy and succulent from the rank juices of the gravid womb, present conditions favorable to retrograde metamorphosis. After labor, the uterine contractions so constrict the blood-vessels that the fibroid no longer gets the amount of pabulum necessary for its quickened vitality. It shrivels, and may even disappear, either through simple atrophy, or by a process of involution analogous to that of the parturient womb. Sometimes, bruised by the pressure to which, during the throes of labor, it has been subjected, it breaks down and comes away in grumous and fetid discharges, too often then destroying life by septicæmia.

At this stage of our inquiry an interesting question comes up,—one which your patients will eagerly put, and one which you must therefore be prepared to answer: Does a fibroid ever degenerate into cancer? In good faith you can reply, "Never." The few blood- and lymph-vessels of this growth, its loose attachment to the parenchyma, and its consequently sluggish life, restrict its action, and preclude the possibility of any malignant degeneration. Careless observers, misled by the fact that a fibroid may coexist with a cancer in the same womb, have mistaken coincidence for causation. Or perhaps they have been deceived by the putrid sloughs of a disintegrating tumor. But, with our present light, the doctrine of the convertibility of the former into the latter is untenable.

Step by step I have led you on until the time has come to discuss the physical and the differential diagnosis of this class

of tumors. A digital examination *per vaginam* will discover an enlarged womb, with increased weight and diminished mobility. Conjoined with this, external palpation will show, by the play of the mass between the two hands, that the suprapubic tumor is an integral part of the womb. In small tumors this bi-manual examination will often prove inefficacious, and in fat women wholly fail. The site of a fibroid and its kind determine the ease with which it may be discovered. Thus, a fibroid is readily discoverable by the rectum or by the vagina if sessile and on the lower segment of the womb. On the other hand, much larger ones may escape detection if intramural or submucous, or if seated higher up towards the fundus. Retroflexion must not be mistaken for a fibroid in the posterior uterine wall. In each there will be a tumor in the interspace between the rectum and the uterus. The direction in which the sound passes, and the ease with which it corrects the displacement, should discriminate between these two conditions. Again, in a retroflexion a sulcus exists between the cervix uteri and the apparent tumor; and, further, the latter, being the fundus of the womb, is tender to the touch. Whereas, in a fibroid there is not this tenderness, and the cervix, without any intervening fissure, loses itself in a hunch on the back of the womb. I lay stress on this point, because in most of your text-books you will find it stated that this sulcus does not exist in retroflexions; but in my experience its presence is the rule, and its absence the exception. If in a case of apparent retroflexion the concavity of the sound looks anteriorly, there must be present either a fibroid on the posterior wall, a dislocated ovary, an extra-uterine foetation, or, what is very rare, a bifid uterus. The depth to which the sound passes will also greatly aid the diagnosis; for nothing but a tumor—when pregnancy or a hypertrophic elongation of the cervix is not present—can lengthen out the cavity to four, five, or six inches. By the direction which the sound takes, and also by feeling for its tip, either above the pubes or in the rectum, you can tell on which wall of the uterus the fibroid is growing.

It is not always easy to distinguish a fibroid tumor from the

gravid womb. The uterine murmur in each is the same; nausea and vomiting are often present; foetal movements may be imagined; and the areola around the nipple darkens. Other signs of pregnancy are perhaps found, and the physician jumps to that conclusion, overlooking such counterproofs as the hemorrhagic attacks, the absence of moisture and of œdema around the nipple, and the lack of the ordinary changes in the lower segment of the pregnant womb. Whenever a fibroid is present, the womb feels hard,—far more so than when gravid; the cervix does not soften down, and is not so continuous in outline with the lower segment of the womb, but projects abruptly, like the nipple on a distended breast. Nor does the vagina become violet in hue; but to this I have seen one marked exception. Further, the pregnant womb grows rapidly, and, when handled, becomes alternately hard and soft; it also shows a distinct outline when irritated into contraction. None of these signs are discoverable in a womb containing a fibroid. Still, in some cases all these rules will fail, and you will have to fall back on time to clear up the diagnosis. In doubtful cases it is always safer to assume the existence of pregnancy until the contrary is proved. On the other hand, do not forget that pregnancy may coexist with a fibroid tumor, and be chary, therefore, in the use of the sound. In the treatment of uterine diseases remember this golden rule: *Think twice before you pass the sound.*

An ovarian tumor is usually distinguishable from a fibroid by its fluctuation and rapid growth; by the uterine sound, which will not indicate an enlargement of the uterine cavity; by the absence of menorrhagia, of leucorrhœa, and of uterine souffles and colics. There will be a greater mobility and a higher elevation of the womb, and a less tendency to displacement, than in fibroids; also, the ulnar margin of the hand can be sunk more deeply between the pubes and the tumor, if ovarian. Fibroids begin very rarely indeed before the age of thirty, and never after that of fifty; ovarian tumors are common to all ages after the period of puberty. Colored women—as I have before told you—are extremely obnoxious to fibroids, but very rarely so to cystic disease of the ovaries.

A differential diagnosis between the three varieties of fibroid is often of great importance, but it may not be attainable by the ordinary signs and symptoms; or a question of intra-uterine polypus comes up. What is the course now to be pursued? Clearly, to explore the uterine cavity with the finger. For this end, the cervical canal must be dilated either by a series of sponge, or of slippery-elm-tents, or else by a fagot of laminaria-tents. But stay! these agents will not always be necessary; for—and pray do not forget this—during the catamenial flux, the increased bulk of the tumor, together with the resulting labor-like pains, so opens up the os uteri as often to permit the passage of the finger into the uterine cavity.

In so far as danger to life is concerned, the prognosis of uterine fibroids is on the whole so favorable that you can give honest comfort to your patient. Her days, it is true, may be shortened by exhausting leucorrhœa and hemorrhages; or she may be jaded out by the pain and distress caused by the bulk-pressure which chiefly happens when the tumor is fibro-cystic. But these are, fortunately, exceptional cases; whilst sudden death from the violence of the hemorrhage is extremely rare. Attacks of peritonitis are common; but even these are generally not fatal, unless they result from child-birth. The nearer the woman to the critical period of life, the more favorable is the prognosis; but remember this important fact: The menses will linger on beyond the usual time. Fibroid tumors, in common with other uterine affections leading to congestion, keep up the ovarian nismus and greatly prolong the menstrual period of life. To a woman who has passed the climacteric, you can hold out hopes not only of a life of comparative comfort, but also of a decline in the size of the tumor.

Pregnancy very greatly enhances the peril of the woman. New dangers, which cannot be glossed over, now confront her. When seated in the lower segment of the womb and in front of the presenting part of the child, a fibroid may render labor difficult, dangerous, or impossible. Besides those arising from obstruction, it may cause other very grave dangers. Wherever seated, the now pulpy and succulent tumor—if of the

submucous or interstitial variety—is liable to sustain serious injury from the effects of labor. It may be so bruised as to kindle up a fatal peritonitis, or to break down and give rise to septicæmia. Further, by hindering firm uterine contraction, it may retard the labor, or induce an uncontrollable post-partum hemorrhage. Or the irritation of its presence may goad the womb into exhausting after-pains. The retention of the placenta or of the membranes is another complication likely to happen in these cases. In two which fell to my care, the uterine cavity was so distorted by the bulging in of a submucous fibroid that although I succeeded in getting away the placenta, the membranes were torn off and left behind. For fear of bruising the tumor, I did not dare to force my hand into the uterine cavity to remove them; but by the third day they had worked down to the os, and were then coaxed away. In each of these cases, the expulsive pains were so hampered by the presence of the solid body in the uterine wall as to need the aid of the forceps. Both deliveries were followed by alarming flooding, by an exhausting oozing which lasted several days, and by very unruly after-pains. One of the women recovered so perfectly from the immediate effects of labor as to be able to be about the house, but in the fifth week septic symptoms set in, and she died soon after. After death, the tumor was found to have softened down into putrilage. The other woman gave me much anxiety. Her convalescence was slow, her pulse feeble and frequent; she had night-sweats, great prostration, and other symptoms which led me to fear that disintegration had begun, but she finally did well, with the fibroid greatly reduced in bulk.

A few weeks ago I exhibited to the Obstetrical Society of this city a womb containing in its posterior wall a fibroid larger than the ovum at term. It had been removed by my friend, Dr. Wm. B. Atkinson, from the body of a light-mulatto woman, aged thirty-five, who had died quite suddenly on the tenth day after giving birth to a fully developed infant. This fibroid must have grown very rapidly during gestation, for previously to her delivery she had not been conscious of its existence. The labor would probably have been tedious had not the feet pre-

sented, which enabled the attending physician—Dr. W. F. Patterson—to render early assistance. Curiously enough, there was no post-partum hemorrhage, nor any other complication. Although the tumor had begun to soften at its centre, death was, I think, due, not to pyæmia, but to puerperal embolism of the pulmonary artery. For, from the very imperfect contraction of the womb,—splinted up as it was by the fibroid,—it is reasonable to suppose that some one of the physiological clots of the unconstricted uterine vessels had become long enough to project into a large vein, where its tip was washed off and swept into the pulmonic circulation.

Do not infer that every kind of uterine fibroid is dangerous to the parturient woman. Repeatedly have I discovered out-growths on the surface of a recently-delivered womb; but never, to my knowledge, have they given rise to serious symptoms. Being either sessile or pedunculated, they rarely interfere with firm uterine contractions; whilst their position outside of the muscular layer secures them from the grip of the uterus. It is only when one lodges in the retro-uterine space that it can be squeezed, and then only by pressure from the child's head.

## LESSON XXI.

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### *The Treatment of Fibroid Tumors of the Womb.*

THERE is no cut-and-dried method of dealing with uterine fibroids; their treatment is essentially a combat with symptoms. For your guidance, a few broad rules may be given, but much must be left to your own good sense. You will have to act either on the defensive or on the offensive; and I shall therefore divide the treatment into the *palliative* and the *radical*. The former aims to accomplish the following ends: (*a*) To stay the hemorrhage; (*b*) to allay pelvic pains and uterine colic; (*c*) to lessen the inconveniences arising from the weight and the bulk of these fibroids; (*d*) to check their growth.

To stay the hemorrhage is the most imperative of all the indications, and as such I shall dwell on it somewhat fully. A day or two before the one on which the menses are expected, relieve the precursory engorgement of the pelvic viscera by a saline cathartic, and put your patient to bed, where she is to stay during her sickness. Such rest—and I mean rest in the widest acceptation of the term, both functional and physical—will alone often work like a charm. If it fails, give a teaspoonful of the fluid extract of ergot every fourth, sixth, or eighth hour, according to the urgency of the symptoms. Ergot is here our sheet-anchor. In the interstitial variety it rarely fails to do good, but in the submucous it will occasionally increase the hemorrhages. Sometimes it acts best when combined with the potassic iodide, or with the oil of erigeron. Iced enemata and the application of warmth to the spine are important adjuvants to the foregoing treatment. So also are vaginal injections

of large quantities of water as hot as can be borne, and, if these fail, as cold as can be borne. Next to ergo, gallic acid is the most valuable hæmostatic. Given in large doses,—say twenty or thirty grains every second, third, or fourth hour,—I know nothing better to check the most alarming hemorrhages, either from the womb, as in menorrhagia, or from the bowels, as in typhoid fever. When serious emergencies of this kind arise, to give smaller doses is mere trifling. Any table syrup will disguise its taste and reduce its bulk. Sometimes you will succeed best by combining ergot with gallic acid; and to this you must often add laudanum enough to allay the severe pelvic and uterine pains. Two grains of quinia combined with twenty drops of aromatic sulphuric acid, and given every two hours, will sometimes succeed when other remedies fail. Læeching or scarifying the cervix a day or two before, or even during, the menstrual flux, will relieve the local congestion, and very materially lessen the bleeding.

During the intervals between the menses, or between the intercurrent hemorrhages, some intelligent treatment must be adopted. To supply the waste of blood, iron in some form is indicated; not given alone, however, but in combination with such medicines as lessen the congestion of the womb. For this purpose, ergot and Indian hemp sustain the greatest reputation. Digitalis and arsenic have many advocates, and so has ipecacuanha. All these remedies must be given in full doses. McClintock recommends small doses of the mercuric bichloride combined with arsenic and iron; it has repeatedly been given by me with benefit. Spencer Wells lauds a free exhibition of vinca major—the greater periwinkle of our gardens. An infusion of two ounces of the leaves to twenty of boiling water should be given every three or four hours in wineglassful doses. Of the fluid extract, one drachm can be given at the same intervals of time. I have had no experience with it, but, with such a recommendation, it is worthy of trial. A favorite mixture of my own consists of equal parts of the tincture of the ferric chloride, dilute phosphoric acid, fluid extract of ergot, and the tincture of cinnamon. Of this one teaspoonful is to be taken after each meal, in a wineglassful of water.

What are you to do if the hemorrhage is not checked by these means? Inject subcutaneously from two to four grains of ergotine, and if there is no response you may at once proceed in the usual way to tampon the vagina. But let me here say that it is far better to plug up the os uteri than the vagina, for you will then not only stay the existing hemorrhage, but will also, as you will shortly learn, lessen the tendency to future ones. For this purpose, either squeeze into the os the largest tent possible, or else expose the cervix by a speculum, hook down the anterior lip, and then, with the uterine sound and speculum forceps, pack little by little into the os and uterine cavity all that you can of a long and narrow strip of lint. First dip the lint into a solution of Monsel's salt, and also, for convenience of removal, leave a short tail outside of the os. To this practice the objection has been made that the blood, accumulating in the womb, would force open the oviducts and escape into the peritoneal cavity. From spasmodic uterine contractions excited by the admission of air, this very fatal accident, it is true, happens so frequently after nicking an imperforate hymen, as to make that operation a very dangerous one. But the locked-up menstrual secretions are tarry and uncoagulable; whereas the blood from a fibroid readily clots. Further, were the objection to the tampon valid in this instance, it would be so also in any case of hemorrhage from the non-gravid womb. The tampon of lint should be left *in situ* for twenty-four hours, but not longer, as by this time it will have become fetid. If necessary, a fresh one may then be introduced, to be removed after the same lapse of time. Of these two methods, I much prefer the former, because, since some blood will always ooze out by the side of the sponge and through its meshes, it can be kept in for two or three days without becoming fetid; and because it is a curious and an unexplained fact, that whatever dilates the cervical canal of a womb containing a fibroid tends to lessen the frequency and the duration of the hemorrhagic attacks. Repeatedly, after using a sponge-tent, either for diagnostic purposes or as a tampon, have I seen the hemorrhages much diminished for weeks and even months.

To impress this fact upon your minds, and also to show you

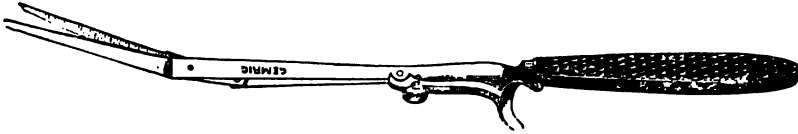
the worthlessness of unskilled assistants, let me speak to you a moment about one of our patients, whose attendance to-day I forgot to engage. She is thirty years old, six years married, sterile, and was reduced almost to translucency by a steady dribbling of blood from a submucous fibroid. Three months ago I passed up successively three sponge-tents before I could sufficiently dilate the cervical canal. Since their introduction she has gained in flesh and color, and has no hemorrhage other than that attending her menses. While I was introducing the last tent, a neighbor, who was holding a glass-lamp containing kerosene, without giving us the slightest warning, fell over backwards in a fainting-fit. My patient, having at that moment a base-expanding speculum in her vagina, could not move, but she made ample amends by uttering shriek after shriek in apprehension of an explosion. I first sprang for the lamp, that was rolling over the floor in a ball of flame, and after getting my hands well scorched, succeeded in putting it out. I then groped for our assistant, who was doubled up against a chest of drawers, and soon brought her to with the contents of a pitcher. We all had a hearty laugh over this adventure, but it was cut short by my patient's going off into a violent fit of hysterics.

Let us advance a step farther; for, to combat this most formidable of symptoms, to confront what Homer calls, "the purple death," we must be armed at all points. You cannot keep a woman always tamponned, and yet, when you remove the tents, she may bleed as badly as ever. Swab over the endometrium now with fuming nitric acid, or carry up in the jaws of the speculum-forceps a good sized piece of the silver nitrate, and leave it within the uterine cavity to dissolve there. Should these prove unsuccessful, stretch open the cervical canal by the dilator, and after introducing the slender nozzle of the uterine syringe between the open blades, inject into the uterine cavity one or two drachms of the tincture of the iodine, or of a saturated solution of Monsel's salt. This rarely fails. But you may ask me, if this is so effectual a remedy, why not resort to it at first? I answer, because of the injections, for reasons with which you are

with some risk; and doubly—yes, trebly—so, if the os has not been previously dilated.

Should the hemorrhage still keep on, or return, you must now permanently dilate the cervical canal to the extent of easily admitting your index finger. This is done by incising the whole canal, either bilaterally with the hysterotome (Fig. 70)

FIG. 70.



DOUBLE-BLADED HYSTEROTOME.

or at several points with a probe-pointed and curved bistoury. In performing this operation, it is best to expose the cervix by a speculum, and to steady the anterior lip with a small tenaculum. Whenever the cervix is thinned down, and the os reduced to a mere rim, a strong pair of curved scissors will readily slit its margin. In case the cervix is long and not at all effaced, my own practice is to stretch open the canal by the dilator, and crowd into it a fagot of laminaria tents, before resorting to cutting instruments. My reason for this is, that, very commonly, after such a dilatation of the os, the further descent of the tumor prevents the opening from closing.

As intelligent men, you will demand the *rationale* of this operation. This I cannot give, for the resulting benefits are empirical facts, which you must take on trust. Some writers hold that large vessels are divided by this incision, and that an important supply of blood is thereby cut off from the tumor. This, however, does not explain the good effects of a sponge-tent. Others, that more room is thus gained for the tumor, and the veins are then relieved from the engorgement due to pressure. Finally, there are those who contend that the enlarged canal, by furnishing an open channel, prevents such an accumulation of blood and mucus as to distend the uterine cavity. Choose whichever you prefer; to me the operation seems to be forced.

After such an incision of the os uteri, the hemorrhages will often remain for months in abeyance. But should they start again to any alarming extent, you hold in reserve yet another, and that the last plan. It is one devised by that distinguished ovariologist, the late Dr. Washington L. Atlee,\* and one which is very successful. After well dilating or incising the os uteri, a long-handled bistoury, curved and probe-pointed, is passed up into the uterus as far as the guiding finger will reach, and then is drawn firmly down over the tumor, freely dividing its capsule and cutting into its substance to a depth of about half an inch. I, however, as you will shortly learn, prefer to use a fine saw for this purpose. This incision severs the superficial blood vessels, which are the ones that bleed, and to that extent lessens the vascular supply.

Stripped of its power to bleed, a fibroid is shorn of much of its power to do harm; but there will remain for treatment pelvic pains and vesical and rectal tenesmus. Rest will also here prove of avail. When the tumor becomes too large for the pelvis, if not too firmly impacted or adherent, it must be dislodged and pushed up above the brim; and, by the way, this manœuvre has succeeded in putting a stop to an obstinate hemorrhage. To effect this, put the woman in the knee-breast posture, introduce two or more fingers into the vagina, and, for fear of exciting an attack of peritonitis, gently graduate the force to the resistance; bearing in mind that less will be needed if the tumor be pushed up by an upward and a lateral pressure, so that it may partly rotate on its axis, and thus rather skirt the sacral promontory than pass over it directly upward. This spiral movement you will find extremely useful in the reposition of a retroverted womb, whether empty or gravid. In one case of impaction, the tumor was quickly raised above the brim by the steady pressure of Dr. J. P. White's "Uterine Repositor," (Fig. 71) after my friend, Dr. A. Fricke, and I had twice failed in our endeavors to push it up by the hand, although the patient was put each time under ether, and we worked turn-about. In using this repositor the spiral wire-spring is placed

\* *Trans. American Medical Association*, 1863, p. 558.

on the chest of the operator, who can thus keep up a continuous pressure without fatigue.

More commonly at the menstrual periods, but also at other times, the womb is excited to extrude the foreign body. These uterine colics will tax all your skill and tact. The early use of morphia by the mouth must be avoided, as that drug soon be-

Fig. 71.



WHITE'S UTERINE REPOSITOR.

comes a diet. Begin with hyoscyamus or with belladonna, or with vaginal suppositories of morphia and belladonna—say, one grain of the former to two of the latter. I am indebted to my friend Dr. E. L. Duer for the following method of uterine medication, which you will find very convenient in country practice: A teaspoonful of glycerine, containing the anodyne, is poured into a hollow made in the centre of a thin sheet of cotton-wool not quite so large as one's palm. The edges being now gathered up and securely tied, there will be formed a small tampon, which the woman can herself pass up into the vagina. For convenience of removal, the ends of the string should be left long enough to hang out of the vulva. In very severe attacks of pain, a hypodermic injection of morphia will often be needed. On the whole, I think the *cannabis indica* is the best narcotic with which to begin your treatment; for it has the double property of relieving pain and of restraining uterine hemorrhage. You may sometimes be tempted to use the hydrate of chloral; but give it cautiously and watch its effects, for in my hands it has certainly increased the bleeding. Perhaps by weakening the action of the vaso-motor nerves, this drug increases the calibre of arteries, and thus tends to excite hemorrhages.

To lessen the inconveniences arising from the weight and bulk of these tumors, various forms of pessary may be used. But they are available only when these fibroids are small enough to move about freely in the pelvic cavity. Whenever they are too bulky to sink very low into the pelvis, or, having been pushed up, you wish to maintain them above the brim, external support must be resorted to. An elastic belt, stiffened by slips of whalebone and kept in position by a perineal strap, will then give much comfort by relieving the pelvic viscera from pressure. I have been able to send on a jaunt through Europe a patient with a very large fibroid thus supported. Frequent baths will also assuage the vesical and rectal tenesmus.

To check the growth of these tumors, you will advise total abstinence from sexual intercourse, more or less of the recumbent position, loose dresses, a somewhat sedentary life, and a spare but wholesome diet. You will also give such medicines as are known to lessen the flow of blood to the reproductive organs. This class of remedies comprises ergot, digitalis, cannabis indica, borax, and the potassic bromide or iodide. These may be given singly or in combination. Every means must be used to prevent portal and pelvic congestions. With this object in view, the contents of the bowels must be kept soluble, and rest strictly enjoined before, during, and after the menstrual flux. Broken-down constitutions fearlessly build up by vegetable and mineral tonics; by stimulants only very exceptionally. All growths thrive best in a cachectic soil.

Give comfort to your patient in her sore estate; brighten up her hopes, and above all distract her attention from self. The correlation between mind and matter is not the mere postulate of the metaphysician. Shrewd observers have noticed that too much heed given to any one organ determines the blood to it. It is not, therefore, by a mere coincidence that specialists, with the lucky exception of gynecologists, are very likely to die from the very diseases which they treat. In a valuable communication to the *Journal of Mental Science*, on the "Influence of the Mind upon the Body," Dr. D. Tuke proves, by very forcible illustra-

tions, that "Thought strongly directed to any part tends to increase its vascularity, and consequently its sensibility;" and, further, that "There is no sensation, whether general or special, excited by agents acting upon the body from without, which cannot be excited also from within by cerebral changes (including those associated with emotional excitement) affecting the sensory ganglia."

By these means, and by those previously enumerated, you will very generally succeed in tiding your patient safely over the perils of the menstrual period of her life; and, the climacteric once reached, her future will thereafter be one of comparative comfort.

We come now to the radical treatment of these tumors; and here I cannot promise you so large a measure of success. Can a uterine fibroid ever be discussed by therapeutic measures?—is a question still agitated by the medical world. Out of a horde of discordant units it is not easy to strike a fair balance, but the weight of evidence undoubtedly inclines to the negative side. And yet, why should not such cures happen? How is it that means tending to restrain growth cannot also tend to cause absorption? Consider, further, the histological resemblance of these fibroids to the hypertrophied womb. If in the one a process of involution takes place from a diminished supply of blood, why cannot a like process be brought about in the other by a like cause? But positivism is the watchword in scientific research, and the question, therefore, should not be, "What ought to be?" but "What is?" In answer to this question, I must candidly admit that theory is here not sustained by practice, and that very few typical and trustworthy cases have been reported of cures effected by internal remedies. Perhaps one reason of this is (you see how reluctant I am to yield this point), that, the treatment being a long and tedious one, the patient either gets disheartened and gives it up, or else goes from one physician to another. I have seen certainly two cases in which the fibroid slowly shrank away coincidentally with—I hardly dare to say, under—the persistent use of iron and ergot. I can also testify to the marked diminution of a very large fibroid after the long-continued friction of an ointment composed

of eight grains of the mercuric biniodide to the half ounce of lard. I was led to the use of this ointment from observing its good effects in goitres; the part anointed should be exposed to the rays of the sun until a burning sensation is felt. By stimulating the trophic nerves to greater activity, the constant galvanic current has caused retrogressive changes in these tumors. I look upon this agent as one yet in its infancy, and as one from which much may in the future be expected.

The late Drs. Atlee and Peaslee reported successful cases from the internal administration of the ammoniac chloride. It should be taken for months thrice daily, in ten grain doses. It is best given either in compressed pills, or dissolved in cinnamon water, or mixed with licorice powder. Simpson lauds the potassic bromide; but from its use I know of no cures. McClinck reports good results from the use of the calcic chloride. Very recently M. Guéniot has proposed the absorption of fibroid tumors by such agents as tend to produce fatty transformation of tissue.\* According to C. Bernard, these steatogenetic substances are arsenic, phosphorus, and lead. In a prize essay, Dr. Samuel R. Percy shows that phosphorus especially produces oily degeneration, which "destroys structure, disintegrates cells, and, as a consequence, vital action is gradually but surely lost." Could the action of this drug be limited to the uterine walls, there is little doubt but the absorption of their growths would result. But, unfortunately, its action, being diffused over the whole body, would tend to cause the same process of disintegration to take place in more vital organs.

A more feasible and rational method of treatment is proposed by Prof. Hildebrandt, of Königsburg,† which bids fair to prove of great value. He reports that he has successfully treated nine cases of fibroid tumors of the uterus by daily injections of the aqueous extract of ergot under the skin around the umbili-

\* *Medical Times and Gazette*, March 23, 1872, p. 350.

† *Transactions Am. Med. Association*.

‡ *Half-Yearly Abstract*, January, 1873, p. 248, from *Berliner Klinische Wochenschrift*, June 17, 1872

cus. By this treatment one fibroid, reaching above the navel, wholly disappeared. Another, which so filled the entire abdominal cavity as to press upon the false ribs, was much reduced in size. In the other cases the tumors were greatly diminished in volume; and in each one all the alarming symptoms—such as menorrhagia, metrorrhagia, leucorrhœa, and uterine colics—disappeared. The duration of the treatment was from two to four months. In one case only did the toxic effects of the ergot compel a discontinuance of the treatment. For these injections, Prof. H. uses an ordinary hypodermic syringe of a solution containing 3 parts of ergotin to 7.5 parts each of glycerine and water. The mode of action of ergotin in these cases is, probably, its property of contracting the uterine walls, whereby the nutrition of the tumor is interfered with. It is, therefore, very questionable whether any but mural and submucous tumors can be acted upon.

With regard to this kind of treatment a number of physicians have reported very favorably. At a meeting of the College of Physicians at Philadelphia, held January 15th 1873,\* Drs. W. V. Keating and John Ashhurst reported cases in which large fibroids had rapidly diminished in size by one-third and one-half, after sixteen injections made in nearly as many days. One of these cases was seen by me, and I can bear witness to the rapid diminution of the tumor, and to the very marked improvement in the health of the patient. Dr. Keating used a hypodermic syringe, or about twenty drops, of the following solution: *R.* Ergotinæ gr. xlv; glycerinæ, aquæ destil., aa ℥v. Dr. Ashhurst employed the officinal fluid extract of ergot diluted according to the following formula: *R.* Ext. ergotæ fluid. f. 3iiss; glycerinæ f. 3j; aquæ f. 3ij. Of this twenty minims, containing nearly seven minims of the fluid extract, were used at each injection. In each case the injections were made once daily, except when omitted for some special reason, and the point chosen for puncture was the sub umbilical region. Abscesses were in each case avoided by making the injections as deep as possible,

\* *American Journal of Medical Sciences*, July, 1873, pp. 131, 138.

the nozzle of the syringe being carried fairly down to the level of the muscular parietes. A successful case is likewise reported by Dr. Wm. C. Wey, who, in a very impressible lady, had to abandon the hypodermic injections for vaginal and rectal suppositories containing eighty drops of the watery extract of ergot. Dr. B. F. Sherman also has treated a uterine fibroid by hypodermic injections, to the great improvement of all the symptoms. He used Squibb's extract, diluted with glycerine.\* Another successful case is reported by Dr. C. D. Palmer,† and still another by Mr. John Clay,‡ in which, after one hundred hypodermic injections, which were suspended during three menstrual periods, the tumor very sensibly diminished, and the patient became "surprisingly improved." A concentrated infusion of ergot was used, three minims of which were equal to four grains of ergot, and this quantity was daily injected in the hypogastric region. These injections caused at first great pains and redness of the skin; but after a few days were well tolerated. Headache and severe pain in the back evinced the constitutional action of the ergot. That excellent gynecologist, Dr. W. H. Byford, of Chicago, reports several successful cases, which had been treated in like manner.§ Through the squeezing which the tumor got from the contraction of the uterine walls, necrosis took place, and it was extruded in fragments. This operation is, however, not without inconvenience and not wholly without danger. Headache, severe uterine pains, and a spurious hectic fever, evinced the constitutional action in the cases of which I have cognizance. Twice have I seen a peritonitis set up by the violent contractions of the womb. In one of these cases the issue was fatal; yet the benefit is often so great that this use of the hypodermic syringe should not on the score of hazard be rejected.

From what I have learned from the various reports, and

\* *American Practitioner*, May, 1873, pp. 284, 285.

† *Clinic*, April 19, 1873, p. 183.

‡ *Lancet*, May 10, 1873, p. 663.

§ *Transactions American Medical Association*, 1875, also *Trans. American Gynecological Society*, vol. i., p. 168.

from my own personal observation, I am led to conclude that Prof. Hildebrandt's solution is open to the objection of forming abscesses, giving great pain, and discoloring the skin at the seat of puncture. A further objection to it lies in the fact that there is no standard preparation of ergotin which is at all trustworthy. I should, therefore, recommend as a substitute either Mr. Clay's concentrated infusion as given above, or, what I prefer, Bonjean's purified extract of ergot dissolved in water enough to make it sufficiently fluid to pass through the nozzle of the hypodermic syringe. Dr. Squibb suggests a watery solution of a solid extract obtained by evaporating the officinal fluid extract.\* Fifty grains of this extract dissolved in three hundred minims of distilled water will represent a grain of ergot in each minim of the fluid. If the subcutaneous treatment cannot be borne, the ergot should be given by the mouth or by the rectum in as large doses as possible, and kept up for several weeks or even months. An excellent rectal suppository can be made by incorporating ten grains of the solid extract with cacao butter. I feel sure that the permanent effect of ergot, when given by the mouth, is enhanced by its combination with the potassic iodide.

But, supposing the case is not amenable to the treatment of ergot alone, can the fibroid be removed or be destroyed? This question brings up the important consideration of their surgical treatment proper. There is no doubt that, by the continuous peristalsis of the uterine fibres, both the interstitial and submucous fibroids tend to become polypi,—the one (true) by the formation of a stalk, the other (false or naked) by spontaneous enucleation. Now, if we take this hint from nature, and aim to aid her in bringing about these changes, we shall do the least harm; for the removal of either true or false fibroid polypi is recognized by all surgeons as a legitimate operation.

The simplest and safest method of effecting such an extrusion of this fibroid is to dilate the os by several incisions, and to keep up a persistent contraction of the uterine fibres by the continuous use of ergot. If, however, there should be no disposi-

\* *Proceedings of the American Pharmaceutical Association, 1873.*

tion on the part of the fibroid to become polypoid, the process must be aided by incising the capsule. This may be done, as Atlee recommended, with the curved and probe-pointed bistoury, or, as advocated by Matthews Duncan,\* with a straight and pointed bistoury, wrapped with lint to within half an inch of its point. With the former instrument the finger will be the guide. With the latter, the duck-bill speculum is first introduced, the uterus is next fixed both by supra-pubic pressure and by a tenaculum in the os, and then an incision is made into the most prominent portion of the tumor. In my first cases I slit open the capsule with a pair of long-handled scissors; but latterly I have found Adams's Subcutaneous Saw a much more handy and efficient instrument for the purpose (Fig. 72). The finger should

FIG. 72.



ADAMS'S SUBCUTANEOUS SAW.

at once be passed into the incision, in order to separate the lips of the capsule, and break up its attachments to the tumor. The patient is now put on the steady use of ergot, and the extrusion of the tumor is left to the expulsive efforts of the womb. This process of gradual enucleation may last for weeks, and, as the tumor descends, should be aided by traction, and by breaking up the capsular attachments as they come within reach. This method of dealing with these growths is by no means free from danger. Peritonitis may carry the patient off, or what is more common, blood-poisoning through the absorption of putrilage during the breaking down of the growth. Yet there are so many successful cases reported as to make the operation a warrantable one in selected cases.† Although I should advise you to make

\* *Edinburgh Medical Journal*, vol. xii., 1867, p. 713.

† *Transactions of the Medical Society of Pennsylvania*, 1873, p. 88.

as long an incision as possible, it is astonishing through what a small incision a large fibroid will slowly but surely crowd itself. Duncan finds an incision of one inch in length to be quite sufficient, and Greenhalgh burns merely a hole through the capsule by means of the actual cautery.\*

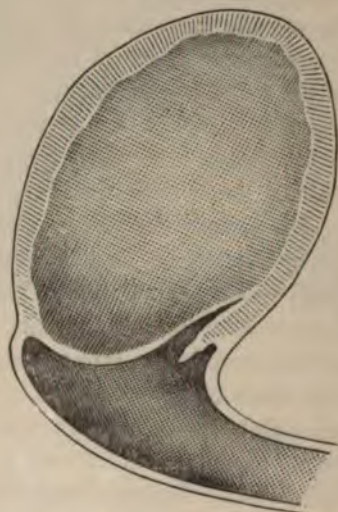
Immediate enucleation, or the removal of the fibroid at one sitting, is always the best plan when possible,—that is, whenever the os uteri is sufficiently dilated and the tumor is within operative reach. It saves the woman from the septic risks attending the slow extrusion and consequent death of the fibroid. The operation is performed in the following manner: A crucial incision is made as freely as possible through the capsule, which is then peeled off, partly by the finger and partly by some blunt-edged instrument like a spatula, or like the flat ivory handle of a bistoury. I have found a strong steel loop, in form like the dull curette, to answer very well; but Dr. Thomas, of New York, has devised a serrated spoon-shaped curette which is, perhaps, the best instrument to sever these attachments. The naked portion of the tumor is then seized by a strong volsella forceps, and very forcible traction made on it,—sometimes, as much as one puts on the head of a child in an instrumental labor. As the growth comes down, its capsular attachments are broken off as they come within reach, until finally it is so loosened as to be torn out from its bed. Once, when I could not wrench out the fibroid on account of strong and unreachable attachments, which refused to yield to very strong traction made in their axes, I succeeded in breaking them off by traction made across their grain. This was done in the following manner: An obstetric crotchet was passed up in the mural cavity and hooked into the highest free portion of the tumor, which was then, with comparative ease, rolled out, or pried out, of its bed. This measure of success cannot always be attained at one sitting, but, as an evidence of what may be effected, let me show you a diagram (Fig. 73), representing *in situ* an interstitial fibroid which I lately removed in this amphitheatre before some of you. Here is the

\* *Medico-Chirurgical Transactions*, 1876.

tumor itself; it weighed twenty ounces, and had so crowded down the uterine walls as to invert most of the cavity. The bleeding during the operation was not serious, and the woman recovered without a bad symptom.

All operative interference with fibroids should, as a rule, be postponed to two or three weeks after the os has been incised,

FIG. 73.



INTERSTITIAL FIBROID TUMOR, BEFORE ITS REMOVAL BY ENUCLEATION.

so as to give time for the cut surfaces to heal, and thus lessen the risk of purulent absorption. Nor should these radical operations be undertaken directly after a serious hemorrhage, but after the woman has rallied from its effects. Any oozing of blood following enucleation can be checked by swabbing out the wound with Monsel's solution, or by stuffing it with iron-cotton. Should the discharges become offensive, deodorizing injections must be resorted to.

Whenever the growth so projects into the uterine cavity as to be seizable with the volsella, its enucleation by avulsion should always be first tried. Of the value of this operation I can speak in positive terms, having performed it eleven times. In all, the

operation was by no means easy, and in two, very tedious—the tumor being removed piecemeal. In every case no vestige of the parasite was left behind, and the women were restored to complete health, save in one instance, in which death from heart-clot took place on the sixteenth day after the operation. My own method of performing this operation, is to seize the fibroid with a strong pair of volsella forceps, and slip over it the loop of a wire *écraseur*. The mucous capsule is next cut through by the wire as close to the uterine wall as possible, and then the fibroid is wrenched from its bed by alternate traction and twisting, both with the *écraseur* and the volsella, while firm suprapubic pressure is kept up by the hands of an assistant.

Such operations as the foregoing can be performed, however, only on sub-mucous fibroids, or on a very few partly interstitial ones which bulge more or less into the uterine cavity. But what is to be done if the fibroid be wholly interstitial or wholly sub-serous? From the exhausting hemorrhages, from the excessive suffering, from the effects of the bulk-pressure, or from a dropsy in the abdominal cavity which a sub-serous fibroid will sometimes cause, the woman may be perishing, but we must not give up in despair. Electrolysis may now be tried according to the method of Drs. Kimball and Cutter. Sharply-pointed and partly insulated needles are thrust deeply into the substance of the tumor through the abdominal walls, and a strong galvanic current passed through them. I have resorted to this plan once, but, as the tumor turned out to be malignant, the trial was not a fair one. Dr. Cutter has, however, had an encouraging success with it, and to his valuable paper I must refer you for further information on the subject.\*

In some otherwise hopeless cases, the womb, together with its appendages, has been removed, but the mortality has been frightful. Yet this wholesale extirpation has proved more successful than that of the enucleation of these growths from the peritoneal surface of the womb. A fatal hemorrhage has been the almost invariable issue. The removal by laparotomy of

\* *American Journal of Medical Sciences*, July, 1878, p. 50.

the pedunculated outgrowths is not so serious an operation; yet very much more fatal than ovariectomy. To these heroic measures, I shall refer more at length in my next lesson, in which I hope to show you a means of relief, and even of cure, by a much simpler and safer operation.

## LESSON XXII.

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### *Spaying for Fibroid Tumor of the Womb, and for Other Disorders of Menstrual Life.*

SOME five years ago Dr. R. Battey startled the medical profession by proposing the removal of the ovaries for those mental or those physical disorders in women upon which menstruation exerts a pernicious influence. His theory was, and a plausible one it is, that since many of these disorders are kept up by the monthly afflux of blood, and are therefore incurable during menstrual life, the only chance for their immediate relief lies in the establishment of an artificial menopause. To effect this change of life, he advocated the extirpation of both ovaries, and labeled the operation Normal Ovariectomy. With this name fault has been found, because it does not cover the whole ground, for in some of the cases operated upon the ovaries were themselves diseased. Now, since it is important to distinguish this operation from that of ovariectomy proper, and since it is not easy to define it, except by circumlocution, I shall call it *spaying*—a term which as technically defines the character of the operation, as that of castration defines the analogous operation in the male.

Among the disorders of menstrual life which are made worse by the monthly determinations of blood to the womb, and for which spaying has been successfully tried, are dysmenorrhœa, convulsions, pelvic hæmatoceles, and pelvic abscesses, recurring at the monthly periods. It has also been resorted to for supposed ovarian neuralgia, for hysteria and insanity with menstrual exacerbations, and for epilepsy with an ovarian aura. The success, however, in these latter cases has been qualified, because

the origin of reflex symptoms is not always discoverable; because pelvic pains need not have an ovarian source; and because hysteria, epilepsy, and insanity may be imponderables, or sheer brain lesions, and wholly unconnected with the sexual apparatus.

But about fibroid tumors of the womb there can be no doubt. The relation here between cause and effect is unmistakable. Their growth and their morbid effects are notably increased at each monthly flux, and notably lessened after the climacteric. In but few other pelvic disorders can we so positively single out the ovaries as the hurtful organs.

Many fibroid tumors of the womb are harmless, giving small token of their presence. But when once they begin to give trouble, there is no limit to the amount of suffering they may cause, while the means of relief at our disposal are limited. Hypodermic injections of ergotine often fail; electrolysis is yet in its infancy; avulsion of the fibroid or its enucleation can rarely be performed; whilst the removal of the tumor by abdominal section, or the extirpation of the womb itself, are among the most desperate remedies known to science.

Now if, under such conditions, we could by any means so lessen the sexual or the periodic congestions of the womb, as to shorten the blood-rations of these growths, the presumption is that the hemorrhages would either stop or abate, that the pains would become less cruel, and that the tumors would cease to grow. "You take my life," says Shylock, "when you do take the means whereby I live." The ovaries being then pre-eminently sexual organs, and, therefore, the means whereby these tumors live, *à priori* reasoning would suggest their extirpation. Let us see whether such logic has been sustained by clinical experience:

Prof. E. H. Trenholme,\* of Montreal, reports a case of interstitial and subperitoneal fibroids of the womb, in which the health began to fail from intolerable uterine tormina and from serious metrorrhagia. The os uteri was on five occasions slit open with a knife, and the mucous surface of the tumor freely cauterized with caustic potash. The relief following these operations being only temporary, the removal of the ovaries was

\* *Obstetric Journal of Great Britain*, Oct., 1876, p. 430.

decided upon. An abdominal incision, five inches in length, being accordingly made, "the ovaries were found low down in their normal position, and not above the brim of the pelvis, as the position of the uterus and fibroids would lead one to suspect." Each pedicle was ligated with carbolized white dressmakers' thread, No. 20, and dropped back. The patient recovered without a bad symptom, and on the twelfth day went out for a sleigh-ride. For three successive months after the operation she had a uterine hemorrhage. It then ceased, and the woman "gained much in flesh and strength." Two years later, under the date of January 28, 1878, Prof. Trenholme wrote to me about her as follows: "There have been occasional, but not regular discharges, to the extent of about a teaspoonful, of pure blood, and no appearance of menses otherwise. Patient is well enough to be at a medical college in ——. The tumor is rather smaller than when the operation was made. I regard the operation a success."

Five other cases are reported by Prof. A. Hegar, of Freiburg.\* The women were perishing from constant suffering, and from hemorrhages caused by irremediable fibroid tumors of the womb. This distinguished gynecologist removed both ovaries from each woman by the abdominal incision. In one, a case of rapidly growing fibro-myoma of the womb, with pain and floodings, death took place on the fourth day from septic peritonitis, the patient being infected by the operator, who was at the time attending a case of sloughing fibroid tumor. In his second case, the tumor grew smaller for five months, and the menstrual flux was absent; then a hemorrhage took place, and an increase in the growth was observed, but the patient was soon after lost sight of. In three, convalescence was uninterrupted, the menopause was established, the tumor became smaller, and the women were virtually cured. August Martin publishes† the history of two cases in which, for the same reason, both ovaries were removed. Neither menstruation nor hemorrhage occurred, and the tumors rapidly lessened in size. Two fatal cases are, however, reported‡ by W. A. Freund and Prof. Kaltenbach; in each the incision was made through the abdomen. An eleventh

\* *Castration der Frauen*, von A. Hegar, *Sammlung Klinischer Vorträge*, 1878, No. 136-138.

† *Berliner Med. Wochenschrift*, 1878, No. 16, p. 226.

‡ *Castration der Frauen*, von A. Hegar, p. 1050.

case is an unpublished one, operated upon by Prof. Nussbaum, of Munich, and evidently with success, as the following extract from his letter to me would imply: "I performed the double ovariectomy in consequence of a fibrous state of the womb. In this case, the period appeared twice distinctly after the operation, and then it ceased altogether."

The twelfth case happened in my own practice, and is as follows:

A. B., aged 33, a literary maiden lady, began to menstruate when thirteen years old, but always with pain. Twelve years ago sacral pains and menorrhagia began to trouble her, and her dysmenorrhœa grew worse. Before long a constant and worrying pain developed in the left hypochondrium, which was unsuccessfully treated first as a malarial affection of the spleen, and afterwards as some lesion of the left kidney. Apart from this pain, she, in the autumn of 1875, began to suffer at her monthlies with an excruciating pain in the left ovarian region. It was a "twisting," a "rending," or a "bursting" pain, as she described it. One week before each monthly period this pain began, and steadily grew worse, until it became unbearable. The flow then appeared, but with no abatement of her sufferings. It lasted not less than a week, and was very profuse. Next followed a week of gradual mitigation of all these distressing symptoms. Thus three weeks out of every four were virtually spent by her in bed. Worn out by loss of blood and by her acute pains, which were finally pronounced to be nervous in their character, she, in the autumn of 1876, consulted Dr. S. Weir Mitchell. He at once suspected a uterine origin, and, in October, 1876, asked me to see her.

The lady was pale, thin, and bloodless, with a face furrowed by acute suffering. I found a vaginal cervix lodged on the symphysis pubis, and a sharply ante-flexed womb imbedded in the hilus of a large and kidney-shaped fibroid tumor. Although the sound gave a measurement of but three inches, the tumor dipped down to the bottom of Douglas's pouch, and reached up to a point two fingers' breadth above the navel and to its left. The unexpanded cervix pouted out from one side of the tumor, bearing to it the same relation as the nose bears to the face. The fibroid was plainly subperitoneal, and not amenable to treatment per vaginam.

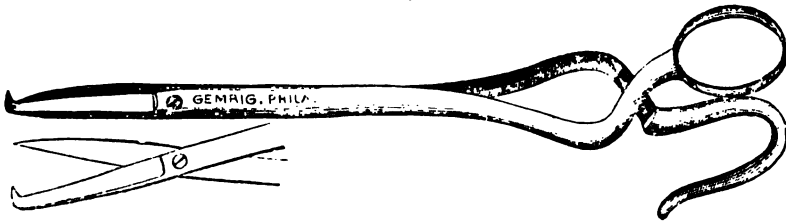
Thereafter, Dr. Mitchell and I met frequently. We first tried ergot, which, although evoking very severe uterine tormina, increased the bleeding. Once, indeed, while under its full action, she flooded so profusely as greatly to alarm her friends and her attending physician. Gallic acid did better, but it was not well borne by the stomach. Various other remedies, both local and constitutional, were resorted to without any benefit whatever. The only mixture which really did her any good was one of cinna-

mon water, containing in each tablespoonful ten grains of ammoniac chloride, and one-twelfth of a grain of mercuric bichloride. This was given thrice daily, and on it she at one time seemed to thrive. But the improvement was transient, and she soon steadily began to go down hill. Worn out by her sufferings, she became a monomaniac on the subject, and gave neither Dr. Mitchell nor myself any peace until she had extorted from us a promise to extirpate the womb. My chief objection to the operation lay in the encroachment of the growth upon the cervix, by which very little room was left for the application of a ligature.

While we were waiting for the summer to pass away, I happened to recall Trenholme's case (the other cases had not yet appeared in our medical journals), and we were led by his success to decide upon the removal of the ovaries.

No sooner was this decision announced to our patient than she insisted upon having the operation performed at once. She indeed grew so morbidly importunate and so unreasonable on the subject, as to make her friends apprehensive of insanity, but we firmly waited for the warm season to end. On October 4, 1877, with the aid of Drs. S. Weir Mitchell, John Ashhurst, C. T. Hunter, B. F. Baer, and W. Heath, I proceeded to operate. After placing our patient on her side, and after introducing the duck-bill speculum, I caught up by a uterine tenaculum a fold of the post-cervical mucous membrane, and with a pair of Kuchenmeister's scissors (Fig. 74), incised the vagina to the extent of about an inch and a half. The

FIG. 74.



KUCHENMEISTER'S SCISSORS.

peritoneum being in like manner snipped open, I passed in my left index finger. By pressing down the tumor with the free hand, I was now able to hook my finger into the sling made by the oviduct, and securely hold each ovary alternately, while I seized it with a fenestrated forceps, and brought it into the vagina. The stalk of each one was next transfixed with a double fine silk thread and securely tied. The ovaries were then removed, the ligatures cut off at the knot, and the stumps returned into the pelvic cavity. The right ovary looked healthy, but the left contained a small cyst. Very trifling was the loss of blood during the operation; no vessel needed tying, and not a suture was put into the vaginal wound.

Following this operation there was an immediate effacement of all the facial furrows of suffering. From that day she lost all those pains and aches which had embittered her menstrual life. No special surgical symptoms supervened, and her convalescence would have been uninterrupted, but for the reaction from the previous overstrain of her nervous system. An hysterical explosion spent itself in dyspnœa, in wandering pains, and in paroxysms of great prostration and of excessive nausea. By firm moral treatment she got the whip-handle of herself, and did well. For two weeks after the operation her linen was stained by a slight oozing of blood, but whether it came from the wound or the womb I cannot say.

On the 16th she went home with hardly a pain or an ache. On the 20th I found her up and sewing. November 19th she came to my office in the highest spirits, overflowing with joy and gratitude. She had walked at one stretch last week ten Philadelphia blocks, which make just one mile. She sleeps without anodynes, and has a keen appetite. December 7th she came to consult me about the merest show of blood, which began five days ago and has lasted ever since. It barely stains her underclothing, and needs no guard; but she feels anxious lest it should turn out to be an effort at menstruation. If it be indeed a monthly period, it is the first one since the operation, and the first one for many years which she has not spent in bed and in great agony. The Sunday following she walked fully one mile to church, joined without fatigue in its rites, and returned home on foot. So impressed was she by this proof of returning health, that she at once wrote me a grateful letter of thanks.

*December 17th.* To-day she consulted me about a soreness high up in the vagina, and about the slight weeping of blood, which had not yet stopped. For the first time since the operation I examined her, and found on the site of the wound a small caruncle or neuroma, which bled at the slightest touch, and was extremely sensitive. After blunting its sensibility with carbolic acid, I snipped it off. I took this opportunity to make a careful examination, and, to my surprise, found the womb astonishingly lessened in size, fully one-half. Instead of reaching to two fingers' breadth above the navel, the top of the tumor now lay half-way between the navel and the symphysis pubis. By February 20, 1878, she had gained twelve and a half pounds in weight, and was looking and feeling extremely well. The tumor is now so much reduced in size as to need searching after. That portion of it which filled up Douglas's pouch has disappeared. The rest lies behind and below the pubic arch.

*April 4th, 1878.* It is only from my previous knowledge of her case that I was enabled to-day to discover a fibroid knob on the right side of her womb and about as large as a horse-chestnut. This information was gained by careful double palpation, for the sound gives a natural length to the womb. On December 6th, I found no further diminution in its size; but she suffers no inconvenience from it, and has had neither menstrual

flux, nor molimina. Since this date I have repeatedly seen her, but have not made any further uterine examination. She has not passed a single day in bed since her recovery from the operation, and practically is wholly cured of her disorder.

Thus we see that clinical experience has, to a remarkable degree, sustained the logic of *à priori* reasoning, and that, in certain conditions of fibroid tumor, the removal of the ovaries is a warrantable operation. But under what conditions does it so become? And does it offer the best chance of rescuing a woman from hopeless suffering or from an early death? For, of course, unless there be danger or great distress, no such radical operation for a fibroid tumor of the womb would be justifiable.

Whenever the growth projects fairly into the uterine cavity, there can be no question that its removal by avulsion should always be first tried. Unfortunately, however, the fibroid does not often lie under the mucous membrane. Its site is usually under the peritoneum or within the uterine wall, and, therefore, this operation becomes available in only a small percentage of cases.

In instituting a comparison between spaying and the enucleation of the fibroid per vaginam, it might, at first blush, seem the better to resort to the latter means. Firstly, because by such an operation would bring about an absolute cure. Secondly, because the tumor is a foreign body—an excrescence, whose removal would make the woman a more perfect creature. Further, the ovaries are important organs, and their extirpation means mutilation, a mutilation causing barrenness and possibly marked psychological changes. Nor, indeed, can we positively depend upon such a mutilation to bring about the menopause or any reduction in the bulk of the tumor. But, as a make-weight, the offending growth is generally mural or subperitoneal, and therefore inaccessible; whilst even in that rarer form, which bulges into the uterine cavity, the operation of enucleation cannot always be undertaken. On the other hand, the ovaries can always be removed, and that by a completed operation, which is relatively less serious than either successful or

unsuccessful attempts at enucleation. Out of twenty-eight cases of enucleation collected by West, fourteen proved fatal.\* In view of these facts, I am by no means sure that when the question comes to lie between the removal of the ovaries and the enucleation of a fibroid imprisoned by an undilated os uteri, the former will not be the operation of the future.

When, however, vaginal enucleation is impracticable, and the question is reduced to one of three, viz., spaying, or enucleation by gastrotomy, or the extirpation of the invaded womb, there is to my mind but one answer, and that one in favor of spaying. My reasons for expressing this belief are, the greater mortality of the other two operations, and the greater mutilation made by the last one. Thus Kœberél, of Strasbourg, has collected twenty cases of gastrotomy, with extirpation of pedunculated fibrous tumors of the womb, by ligature or by enucleation. Yet, although these growths had stalks, and were, therefore, in the best possible condition for being removed, twelve women out of the twenty perished. Again, Dr. Pozzi, of Paris, has published an elaborate thesis upon *The Value of Hysterotomy in the Treatment of Fibrous Tumors of the Womb*, in which he furnishes seventy-five new cases of this operation above the number previously collected by Kœberlé, Caternault, and Péan. His statistical tables thus embody one hundred and nineteen cases in which gastrotomy was performed for the removal of fibroid tumors of the womb. Of these seventy-seven were fatal and forty-two successful. Arguing from eighteen other cases, ten of them being his own, Dr. G. Kimball, from whose excellent paper on *Extirpation of the Uterus*† I glean this information, makes the following comment on Pozzi's statistics: "There is good reason to believe that, upon an honest count of the entire number of such operations, it would be seen that but a small proportion of them have ever been brought before the profession; and as for results, it is probably not unjust to suppose that at least eight out of every ten such cases have proved

\* *Diseases of Women*, p. 307.

† *Transactions American Medical Association*, Vol. xxviii., 1877, p. 322.

fatal." "The uterus," writes Dr. Thomas Keith, "has been pretty frequently removed in Scotland, but all the cases proved fatal with the exception of my solitary three. I need hardly say that the fatal cases are never published."\*

Thomas† gives two tables. In one there are recorded eighteen deaths to six recoveries. In the other, which he deems the more trustworthy, there stand eleven deaths to one recovery.

With such a frightful mortality, to say nothing of the great mutilation of the survivors, extirpation of the womb for fibroid tumor, while not absolutely unjustifiable, should never be resorted to except as an extreme measure; and, in my opinion, not until every other known means, including spaying, has previously been tried. I am not, indeed, sure that in cases of sessile fibro-cystic tumors existing during menstrual life, it would not be well first to try to arrest their growth by the ablation of the ovaries, before resorting to the major operation.

In contrast with this appalling death-record, out of twelve known cases of spaying for fibroid tumor of the womb, there were but three fatal ones, and in each of them the ovaries were removed by the more hazardous abdominal incision. In at least eight the operation was a success in its effect upon the tumor. But since the number of these cases is too small to establish general conclusions, it would be a pertinent inquiry to analyze all the known cases of spaying. By this means we shall discover, firstly, the general mortality of the operation; and, secondly, the relative mortality between the abdominal and the vaginal incision.

The following table shows the number of times the operation of spaying has been performed, the name of each operator, the mode of operating, and the number of deaths. I have done my best to make it as complete as possible, but I am obliged to exclude two cases, one by Dr. A. R. Simpson, of Edinburgh, because the result is not given; and the other, a second case, by

\**Transactions American Medical Association*, Vol. xxviii., 1877, p. 323.

†*Diseases of Women*, 1874, p. 520.

Dr. J. T. Gilmore, because I have been unable to find the reference:

OPERATOR.	Number of Cases.	Abdominal Incision.	Recovery.	Death.	Vaginal Incision.	Recovery.	Death.
Dr. R. Battey, Rome, Georgia, <sup>1</sup>	12	2	2		10	8	2
Dr. Alfred Hegar, Freiburg, <sup>2</sup>	9	9	7	2			
Dr. Marion Sims, New York, <sup>3</sup>	7	3	2	1	4	4	1
Dr. W. Goodell, Philadelphia,	4				4	3	1
Dr. George J. Englemann, St. Louis, <sup>4</sup>	3	3	3				
Dr. T. G. Thomas, New York, <sup>5</sup>	2	2	1				
Dr. E. H. Trenholme, Montreal, <sup>6</sup>	2				1	1	
Dr. A. Martin, Berlin, <sup>7</sup>	2	2	2				
Dr. T. T. Sabine, New York, <sup>8</sup>	1						
Dr. E. R. Peaslee, New York, <sup>9</sup>	1			1			
Dr. W. A. Freund, Germany, <sup>10</sup>	1			1			
Dr. Kaltenbach, Germany, <sup>11</sup>	1			1			
Dr. J. T. Gilmore, Mobile, <sup>12</sup>	1						
Dr. M. A. Pallen, New York, <sup>13</sup>	1			1			
Dr. E. Kœberlé, Strasburg, <sup>14</sup>	1		1				
Dr. J. Von Nussbaum, Munich, <sup>15</sup>	1	1	1				
Dr. W. C. Frew, Coshocton, Ohio, <sup>16</sup>	1	1	1				
Dr. David Prince, Jacksonville, Illinois, <sup>17</sup>	1				1		1
	51	31	20	11	20	16	4

<sup>1</sup> *Transactions Am. Gynecological Society.* Vol. i., p. 119.

<sup>2</sup> *Sammlung Klinischer Vorträge.* Nos. 136-138, p. 1050.

<sup>3</sup> *British Med. Journal*, Dec. 8, 1877.

<sup>4</sup> *Am. Journal of Obstetrics*, July, 1878.

<sup>5</sup> *Trans. Am. Gynecological Society.* Vol. i., p. 352.

<sup>6</sup> *Obstetrical Journal of Great Britain*, October, 1876, p. 426.

<sup>7</sup> *Berliner Med. Wochenschrift*, 1878. No. 16, p. 226.

<sup>8</sup> *New York Medical Journal*, January 1875, p. 41.

<sup>9</sup> *Trans. Am. Gynecological Society.* Vol. i., p. 340.

<sup>10</sup> and <sup>11</sup> *Sammlung Klinischer Vorträge.* By Hegar, l. c.

<sup>12</sup> and <sup>13</sup> *Am. Journal of Obstetrics*, July, 1878.

<sup>14</sup> *Nouveau Dict. de Med. et de Chir.* Tome xxv., 1878, p. 603.

<sup>15</sup> *Personal Communication*, February 12, 1878.

<sup>16</sup> *Am. Journal of the Med. Sciences*, July, 1878, p. 297.

<sup>17</sup> *The Obstetric Gazette*, Dec., 1878, p. 242.

To these I think it is but fair to add seven cases of vaginal ovariectomy to which I shall refer in a future lesson. In these cases the cysts ranged in size from an orange to the womb at term, yet in not one instance was the operation followed by death.

From the above table, then, it appears that out of a total of fifty-one cases of spaying fifteen have died. As regards the relative value of the two modes of performing the operation, it will be seen that out of thirty-one cases in which the abdominal incision was employed eleven died; while out of the twenty cases in which the ovaries were removed by the vaginal incision, only four died. Now, if to the latter be added the seven cases of vaginal ovariectomy, we shall have but four deaths in a total of twenty-seven cases in which one ovary or both ovaries have been removed per vaginam.

The ancients evidently deemed this operation a comparatively harmless one, and not unfrequently resorted to it. Strabo and other writers aver that "certain kings of Lydia caused the ovaries of women to be removed, using them sometimes in their service and sometimes for their pleasure."\* Then, there is that oft-told story of the Hungarian sow-gelder, who is said to have cured the lewdness of his daughter by removing her ovaries. In these cases, moreover, the incision was undoubtedly abdominal. Yet it is a curious fact, established by Englisch,† that of the cases in which extirpation of a healthy irreducible ovary was performed for hernia of that organ, one-half died of subperitoneal inflammation and its results.

The next question which presses for an answer is: How shall the operation be performed? From the foregoing table it appears that the vaginal operation is the safer one. This is undoubtedly attributable to the greatly lessened exposure of the peritoneum, and to the dependent drainage opening. Whether it is as easy an operation as the other remains yet to be seen. Whenever the ovaries are carried up by a large tumor, they may lie beyond the reach of the finger introduced per vaginam. Yet in my case, in spite of a tumor of great size, the glands were caught and extirpated with no great difficulty, much less, in fact, than in my three other cases, in which there was no tumor to dislocate the ovaries. Of these three cases, I

\* *Ovarian Tumors*. By E. R. Peaslee, M. D., Ed. 1872, p. 226.

† *Sydenham Year Book*, 1871-72, p. 293.

may here say that one, a patient of Dr. C. A. McCall, had pernicious menstruation, threatening insanity, of which she was wholly cured. The other, a patient of Dr. A. C. Deakyne, was an opium-eater, bedridden from ovaralgia, and frightful dysmenorrhœa. She was reduced to a skeleton, and having no strength, succumbed to a very slight peritonitis, which developed shortly after the operation. The last one, a patient of Dr. I. W. Hughes, was spayed on account of an insanity with menstrual exacerbations. She recovered without a bad symptom; but the case is too recent to report on.

In two cases, Hegar was obliged to make a large abdominal incision, and to lift the tumor wholly out of the wound before he could reach the ovaries. While, on the other hand, in an analogous case, Trenholme found the ovaries "low down in their normal position, and not above the brim of the pelvis, as the position of the uterus and fibroids would lead one to suppose." Again, strong pelvic adhesions may interfere with such a mode of spaying. Thomas reports a case in which he attempted to remove, per vaginam, an ovary as large as an egg, but failed on account of abundant adhesions.\* The gland was finally extirpated by the abdominal incision, but fatal peritonitis set in. Sims says of one of his cases,† "The ovaries were firmly bound down by strong bands of false membrane, and it was impossible for me to dislodge them. . . . I was forced to abandon the operation." Battey writes of his fourth case that, owing to pelvic adhesions, "it was found to be impracticable to isolate the gland entire, and I contented myself with such disintegration as I could effect with my finger-nail." Cases eight and nine of his series "were so complicated with pelvic deposits of lymph that it could not be asserted that the ovaries were cleanly removed." If, however, the operation through Douglas's pouch should fail, the final resort could always be made to the abdominal incision, and the abandoned vaginal incision be utilized as a drainage opening.

\* *Transactions American Gynecological Society*, vol. i. p. 352.

† *British Medical Journal*, December, 1877.

Candor compels me to note one very serious drawback to the operation of spaying. For some inexplicable reason, the removal of both ovaries does not always bring about the desired "change of life." Ovulation, of course, ceases, but a periodical metrostaxis may go on as before. Now, it is not within the scope of this paper to discuss the theory of this non-ovular menstruation; whether it be due to the force of habit, or to a law of periodicity, or to some fragment of ovarian stroma left behind by the operator, or to supplemental ovarian tissue contained between the peritoneal layers of the broad ligament, or to the existence of a third and supernumerary ovary. What we, as practical physicians, have to deal with, is the important and unexpected fact that uterine discharges of blood sometimes keep on long after the ablation, or the supposed ablation, of both ovaries. This being the case, it will be pertinent to inquire how far we may depend upon such an operation to put an end to the menstrual flux. In other words, what proportion of women who have lost both ovaries menstruate?

It is a fact worthy of note that during the week following the ablation of one or both ovaries, a sanguineous discharge usually takes place from the womb. This happened in three of my cases of spaying, but it is in no wise a menstruation, but a metrostaxis set up by the irritation of the ovarian nerves caused by the means adopted to secure the pedicle. It is therefore more likely to happen when both ovaries are removed, for then two sets of ovarian nerves are injured by the clamp, or the ligature, or the *écraseur*. Such fluxes, even when repeated once or twice, do not mean a continuance of menstruation, and I have so labeled them in my tables.

To obtain the data for the following tables much correspondence was needed, and I here take the opportunity of recording my thanks to the distinguished gentlemen, at home and abroad, who were kind enough to answer my inquiries. Among the last letters written by the lamented Peaslee was one giving me his personal experience on this point. I wish also to express my obligation to Dr. J. Goodman, for pioneer work in this direction—he having collected twenty-six successful cases of

double ovariectomy, in which the subsequent menstrual history is given.\*

TABLE OF CASES IN WHICH SO-CALLED MENSTRUATION KEPT ON AFTER THE REMOVAL OF BOTH OVARIES.

No.	Operator.	Age	Quoted from :—	Menstruation.
1	Verneuil, M.	36	Annales de Gynécologie, Aug., 1877, p. 145.	None for 6 mos., then for 6 mos. every alternate mo., afterwards regularly.
2	Storer, H. R.	..	American Journal of Medical Science, Jan., 1868, p. 81.	Uninterrupted.
3	Atlee, W. L.	35	Atlee's Ovarian Tumors, p. 35.	"
4	" "	31	" " " "	"
5	" "	40	" " " " p. 38.	"
6	" "	..	Personal communication, dated Dec. 17, 1877.	For 5 mos., then died.
7	Meadows, A.	..	Lancet, 1872, p. 290.	For 6 mos., was then lost sight of.
8	" "	..	Am. Sup. to Obstet. Journ. of Great Britain, vol. ii. p. 5.	For 3 mos. after operation, and then was lost sight of.
9	Jackson, R. A.	44	Chicago Med. Journal, Oct., 1870, p. 585.	Uninterrupted.
10	Le Fort.	..	" " " "	"
11	Brown, I. Baker	..	" " " "	Irregular.
12	Frew, W. C.	24	Am. Journ. Med. Sci., July, 1878, p. 297.	None for 6 mos., then ev'ry 2 mos. profusely.
13	Batley, R.	35	Trans. Am. Gynæ. Soc., vol. i., 1877, p. 119.	At intervals of from 3 to 7 months.
14	Thomas, T. G.	..	Am. Journ. of Obstetrics, Oct. 1877, p. 665.	Irregular for 6 months when last heard of.
15	Kimball, G.	48	Personal communication of January 22, 1878.	Irregular for 5 months, when she died.
16	Trenholme, E. H.	32	Obstet. Journ. of Great Britain, Oct., 1876, p. 425, and per. com.	Irregular discharges of a drachm of blood.
17	Burnham, W.	32	Personal communication of January 18, 1878.	Regular, but less in quantity.
18	Weinlechner.	25	Sammlung Klinischer Vorträge, No. 136-138, p. 998.	Uninterrupted.
19	"	35	" " " "	"
20	Hegar, A.	36	" " " "	"
21	Thornton, J. K.	24	Obstet. Journ. of Great Britain, Feb., 1878, p. 723.	Irregular, with relief to flushes and headache.
22	" "	..	Personal communication, Oct. 11, 1878.	Irregular colored discharges.
23	Wells, T. S.	29	Diseases of Ovaries, p. 434.	Uninterrupted.
24	Bird, F.	32	Lancet, Oct. 30, 1847, p. 467.	"

\* *Richmond and Louisville Medical Journal*, Dec., 1875. These cases as given by Goodman are twenty-seven in number; but I have excluded the one attributed to Koeberlé, because in this one the womb alone was removed and not the ovaries. The woman afterward became pregnant and perished necessarily from extra-uterine foetation.

Another very curious and unexpected fact elicited by these inquiries, is the recurrence of so-called menstruation, even after the removal of the womb itself together with ovaries. Storer\* completely extirpated the womb and ovaries, yet on the nineteenth day a sanguineous discharge, lasting thirty hours, took place from the vagina. Burnham writes to me that after such an operation, "several months after the recovery, seemingly a perfect one, there occurred from the vagina quite a copious discharge, tinged with blood, which continued for one day, and was never followed by any recurrence."

After such facts as these, one is prepared to accept the further statement that menstruation not only has gone on, but has become excessive, after cystic or other disease has invaded both ovaries and wholly destroyed them—at least, apparently so. Examples of this kind are furnished by Bühring and Beigel, and by Mayrhofer,† who quotes them. A very interesting case is told by M. Terrier.‡ He removed one ovary for cystic disease. The woman died two years after, and, although the remaining ovary was found wholly altered and cystic, she had menstruated up to the time of her death. Sinety makes an analogous observation,§ which, however, is beyond my reach. But the climax is capped by Atlee,|| who gives two cases in which, one ovary having been removed, the other became so diseased as to need repeatedappings, and yet each woman not only menstruated, but gave birth to a child. In these remarkable cases I cannot but think that there must have been a third ovary. The occasional existence of such a supernumerary organ has been verified by several conscientious observers, referred to by Puech.¶ Beigel\*\* found accessory ovaries eight times in three hundred and fifty autopsies.

\* *Am. Journal of Medical Sciences*, January, 1866, p. 119.

† *Wiener Medizinische Wochenschrift*, Feb., 1875, p. 130.

‡ *Bulletin et Mém. de la Société de Chirurgie*, 1876, t. ii., p. 551.

§ *Bulletin de la Société de Biologie*; Séance Decembre 2, 1872.

|| *Atlee, Ovarian Tumors*, pp. 38 and 39.

¶ *Annales de Gynécologie*, January, 1879, p. 74.

\*\* *Wiener Medizinische Wochenschrift*, May 26, 1877.

TABLE OF CASES IN WHICH THE REMOVAL OF BOTH OVARIES  
DURING THE MENSTRUAL PERIOD OF LIFE WAS FOLLOWED  
BY THE CESSATION OF THE MENSES.

No.	Operator.	Age.	Quoted from:—	Remarks.
1	Pott, Percival	23	Peaslee on Ovarian Tumors, p. 226.	No menstruation.
2	Peaslee, E. R.	24	Am. Jour. Med. Sciences, April, 1851, p. 385.	"
3	" "	39	Am. Jour. Med. Sciences, July, 1864, p. 47.	"
4	" "	35	Am. Jour. Med. Sciences, July, 1865, p. 98.	"
5	" "	22	Personal communication, Jan. 5, 1878.	"In three of these cases there was metrostaxis occurring from one to four days after the operation, and continuing from two to four days."
6	" "	27	" "	
7	" "	28	" "	
8	" "	31	" "	
9	" "	31	" "	
10	" "	34	" "	
11	" "	37	" "	No menstruation.
12	" "	37	" "	
13	Atlee, J. L.	29	Am. Jour. Med. Sciences, 1844, p. 44.	No menstruation.
14	Atlee, W. L.	19	Ovarian Tumors, p. 36.	No red menstruation, but a white discharge.
15	" "	..	Personal communication, Dec. 17, 1877.	No menstruation.
16	Kœberlé, E.	..	Puech. Les Ovaries, et leurs anomalies, 1873, p. 121.	"
17	" "	..	" "	"
18	Storer, H. R.	43	Chicago Med. Jour., Oct., 1870, p. 586.	One sanguineous discharge.
19	Kimball, G.	..	Personal communication of Jan. 22, 1878.	"Menstruated once, but only once."
20	" "	..	" "	"No symptoms of menstruation of any kind whatever."
21	Thomas, T. G.	..	Trans. Am. Gynec. Soc., Vol. i., 1877, p. 352.	Metrostaxis for 5 months, then stopped.
22	" "	..	Am. Jour. of Obstetrics, Oct., 1877, p. 665.	No menstruation.
23	" "	..	" "	"
24	" "	..	" "	"
25	" "	..	" "	"
26	" "	..	" "	"
27	" "	..	" "	"
28	" "	..	" "	"
29	Burnham, W.	28	Personal communication of Jan. 18, 1877,	"
30	" "	36	" "	One profuse discharge; died 4 months later from cancer.
31	" "	38	" "	No menstruation, but patient soon lost sight of.

## MENOPAUSE AFTER THE REMOVAL OF BOTH OVARIES.

No.	Operator.	Age.	Quoted from:—	Remarks.
32*	Burnham, W.	48	Personal communication of Jan. 18, 1877.	Two hemorrhages at 3 months' interval.
33	Dunlap, A.	..	Personal communication of Jan. 24, 1878.	Menstruation never returned.
34	" "	..	" "	" " "
35	Speigelberg, O.	..	Personal communication of Feb. 11, 1878.	} "Never heard that these women ever since menstruated."
36	" "	..	" "	
37	Nussbaum.	..	Personal communication of Feb. 12, 1878.	One metrostaxis.
38	"	..	" "	"The period appeared twice distinctly, then ceased altogether."
39	"	..	" "	No menstruation.
40	"	..	" "	"
41	"	..	" "	"
42	"	..	" "	"
43	Batthey, R.	34	British Medical Journal, December 8, 1877.	Atresia vaginæ; dreadful menstrual molimina cured.
44	" "	..	Trans. Am. Gynæc. Soc., vol. i. 1877, p. 119.	No menstruation.
45	" "	..	" " " "	For several months menstrual molimina came back without discharge.
46	Clay, C.	..	Chicago Medical Journal, Oct. 1870, p. 587.	} Three of these cases had one metrostaxis.
47	" "	..	" " "	
48	" "	..	" " "	
49	" "	..	" " "	
50	Kœberlé.	37	Peaslee, Am. Jour. Med. Sci., Jan., 1865, p. 98.	No menstruation.
51	Brown, I. B.	45	" " " "	"
52	Byford, W. H.	..	Personal communication, dated Dec. 28, 1877.	} No menstruation. All were under observation from two and a half to five years after the operation.
53	" "	..	" "	
54	" "	..	" "	
55	Sabine, T. T.	..	Personal communication, dated Feb. 11, 1878.	"Not the least sign of menstruation."
56	Wells, T. S.	37	Diseases of Ovaries, 1873, p. 434.	No menstruation.
57	" "	34	" " "	"
58	" "	39	" " "	"
59	" "	22	" " "	"
60	" "	39	" " "	"
61	" "	22	" " "	"
62	" "	36	" " "	"
63	" "	26	" " p. 449.	"
64	Jackson.	27	" " p. 475.	"
65	Sims, J. M.	29	Am. Med. Times, June, 1862, p. 335.	Second ovary forced out by vomiting and shrunk away.

\*Although this woman was 48 years old, I include her case, because her menstruation would probably have continued several years longer, as she miscarried of twins six weeks before the operation.

## MENOPAUSE AFTER THE REMOVAL OF BOTH OVARIES.

No.	Operator.	Age.	Quoted from:—	Remarks.
66	Tait, L.	29	Tait's Diseases of Women, London, 1877, p. 285.	No menstruation whatever.
67	Emmet, T. A.	35	Personal communication, April 25, 1878.	One metrostaxis.
68	" "	39	" "	No menstruation.
69	Greene, W. W.	..	Boston Med. and Surg. Journ., Mar. 2, 1871, p. 138.	Each had the usual sanguineous discharge once, and one twice.
70	" "	"	" " "	
71	" "	..	" " "	
72	" "	..	" " "	
73	Keith, T.	42	Edinburgh Medical Journal, Jan. 1866.	Each had the usual sanguineous discharge shortly after the operation.
74	" "	32	Edinburgh Medical Journal, December, 1866.	
75	" "	43	Edinburgh Medical Journal, November, 1867.	
76	" "	42	Edinburgh Medical Journal, December, 1867.	
77	Bailly.	..	Hegar, Die Castration der Frauen, p. 72.	Two metrostaxes.
78	Olshausen.	42	" " " " p. 74.	No menstruation.
79	"	24	" " " "	"
80	Kocher.	32	" " " "	"
81	Dohrn.	31	" " " "	"
82	Frankenhäuser.	33	" " " "	"
83	Freund.	32	" " " "	"
84	Krassowsky.	30	" " " "	"
85	"	22	" " " "	"
86	"	22	" " " "	"
87	"	49	" " " "	"
88	Hegar, A.	47	" " " "	"
89	" "	30	" " " "	Two metrostaxes.
90	" "	18	" " " "	No menstruation.
91	" "	32	" " " "	Several metrostaxes until a polypus was removed.
92	" "	40	" " " "	No menstruation.
93	" "	31	" " " "	"
94	" "	40	" " " " p. 126.	"
95	" "	41	" " " "	"
96	" "	44	" " " " p. 127.	"
97	" "	38	" " " "	"
98	" "	21	" " " " p. 132.	"
99	" "	25	" " " " p. 130.	"
100	" "	29	" " " " p. 132.	"
101	Martin, A.	..	Berliner Med. Wochenschrift, 1878, No. 16, p. 226.	"
102	" "	..	" " " "	"
103	Kæberlé, E.	..	Nouveau Dictionnaire de Médecine et de Chirurgie Pratiques, Tome xxv., 1878, p. 595.	Regular for several periods, then ceased.
104	" "	..	" " " "	" " "

## MENOPAUSE AFTER THE REMOVAL OF BOTH OVARIES.

No.	Operator.	Age.	Quoted from:—	Remarks.
105	Goodell, W.	33	.....	One metrostaxis.
106	" "	27	.....	"
107	" "	38	.....	"
108	Esmarch.	22	Archiv für Gynäkologie, Vol. xii., p. 132.	Atresia vaginæ; very painful menstrual molimina cured.

From these tables it appears that out of 132 cases of extirpation of both ovaries during menstrual life, there were fifteen which had, so far as I can learn, regular monthly fluxes, and nine in which such fluxes were either irregular or lessened in amount.

This is a large average, much larger than one would suspect. But, although very carefully educed, it is, I am sure, untrustworthy, and for the following reason: Every case of double ovariectomy has not been published; but, so opposed to our preconceived ideas is the recurrence of menstruation after the removal of both ovaries, that every such case has been deemed worthy of note. Acting on this presumption, I have included in my table of arrested menstruation some cases in which no allusion has been made by the operator to the subsequent menstrual history; taking it for granted that had a monthly flow continued the fact would have been deemed of sufficient importance to be noted.

In addition to these tabulated cases, I find that eleven successful ones are reported by J. Knowsley Thornton,\* and eighteen by Kœberlé;† but since neither the age nor the menstrual history of the patient is given, I am unable to utilize them. Kœberlé's experience, however, leads him to assert that the menstrual flux never returns unless a portion of the ovarian stroma has been left behind, and that this may occur whenever the pedicle is short and the clamp is used. "In all my

\* *British Medical Journal*, January 26, 1878, p. 125.

† *Nouveau Dict. de Médecine et de Chirurgie Pratiques*, Tome xxv., 1878, pp. 586 and 594.

cases," he writes to Puech,\* "there was complete amenorrhœa."

The actual percentage, then, of recurring menstruation is not large enough to deter one from performing this operation for the purpose of establishing the menopause. But, granting that menstruation keeps on, will its continuance impair the success of the operation? Now, although menstruation, in the sense of a monthly flow of blood, may not cease, yet ovulation ends, and with it the ovular molimen. Consequently such a metrostaxis is merely a blood-leakage, and therefore unattended by that assemblage of nervous and congestive determinations, and by all those reflex symptoms which unite to make up the molimen of pernicious ovular menstruation. To that extent, therefore, may we hope for benefit. Thus, in Battey's first case, although an irregular uterine hemorrhage continued, the woman was cured of very distressing menstrual symptoms, for the relief of which the operation was undertaken. Trenholme's case proved a success in spite "of occasional but not regular discharges" of blood.

Does spaying after puberty unsex a woman? So far as can be ascertained, it does not; at least not more than castration after puberty unsexes a man. In the one the ability to inseminate is lost; in the other the capability of being inseminated; but in both the sexual feelings remain pretty much the same. Males who have lost their testes after the age of puberty retain the power of erection, and even of ejaculation; but the fluid is, of course, merely a lubricating one. The amorous proclivities of the ox or the steer are the scandal of our streets. Alive to these facts, oriental jealousy demands in a eunuch the complete ablation of the genital organs.† Not only are the testes therefore removed, but also the scrotum and the penis. Hence, to avoid the soiling of his clothes, every eunuch carries a silver catheter in his pocket. The seat of sexuality in woman has

\* Puech, *Les ovaires et leurs anomalies*, p. 121.

† *North American Medico-Chirurgical Review*, May, 1861, p. 500; *New York Medical Record*, June, 1870, p. 190; *Medical and Surgical Reporter*, April 24, 1875, p. 329.

long been sought for, but in vain. The clitoris has been amputated, the nymphæ have been excised, and the ovaries removed, yet the sexual desire has remained unquenched. Its seat has not been found, because sexuality is not a member or an organ, but a sense—a sense dependent on the sexual apparatus, not for its being, but merely for its fruition. On this account I have quite recently refused to remove the ovaries from a young woman who is afflicted with uncontrollable nymphomania, although both she and her physician urged the trial of the operation.

In confirmation of these views, Battey notes\* in his cases of spaying, the persistence of aphrodisiac power—a persistence so constant as to forbid any expectation of curing nymphomania by the operation. Nor in any of them was “there a loss of the womanly graces, but, on the contrary, the patient gains flesh, and becomes even more attractive.” This opinion is sustained by Wells, by Hegar, and also by Peaslee, who writes:† “Double ovariectomy as a rule is not followed by any loss of the special characteristics of woman; the only decided physiological change being a final cessation of menstruation, as well as of ovulation. Three of my own patients, married and highly educated ladies, after recovery again became splendid examples of womanhood, enjoying the most perfect health, and retaining all their former attributes of mind, as well as of body, and with undiminished sensory capacities in their matrimonial relations.” Atlee reports a case of double ovariectomy, in which marriage took place after the operation, as “the sexual feelings were normal.” Six months after the operation Verneuil found‡ his patient with well-developed breasts, and decidedly fatter. “She, in fact, seemed far more of a woman than before the operation.” Koeberlé avers that “the extirpation of both ovaries does not produce a single marked change in the general condition of the woman. She has simply attained the menopause abruptly.”

\* *Transactions American Gynecological Society*, 1876, p. 119.

† *Diseases of the Ovary*, p. 530.

‡ *Annales de Gynecologie*, August, 1877, p. 146.

In one of my cases the physical condition of the woman is in every way improved. She became more plump and better looking. All traces of suffering were effaced, and she is not conscious of any psychological changes. Another is just as womanly and just as womanish as she was before the operation. As regards the third, time enough has not yet elapsed to warrant any definite conclusions on this point.

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## LESSON XXIII.

### *Ovarian Cyst.*

ITS DIAGNOSIS, AND ITS TREATMENT BY TAPPING, BY INJECTIONS  
OF IODINE, AND BY DRAINAGE.

IN probably the majority of cases, an ovarian cyst is an enlarged ovisac. The cause of such a growth has not yet been ascertained, but I am disposed to think it often is some sexual disturbance. Fibroid tumors, polypi, and cancer of the womb, have from time immemorial been loosely ascribed to single life. Very recently the relation of the sexual condition to disease has been made the subject of scientific inquiry. From a careful examination of the Registrar's tables for France, it has lately been shown that marriage, by giving a comparative immunity from diseases of the sexual organs, prolongs life in both sexes. This statement is confirmed by the statistics of ovarian tumor. Of Dr. Lee's 136 cases, 88 were married, 37 were unmarried, and 11 were widows. Of Mr. Wells's first five hundred cases, 260 were married, 221 were unmarried, and 19 were widows. Out of a total of 636 cases of ovarian tumor, we have then, 288 without husbands to 348 with husbands. Now when we consider how small the proportion of single women and of widows is to married women whose husbands are living, the significance of these figures can hardly be overrated; for it goes to show that unless the cycle of reproduction is completed in woman, she is plainly violating some great law of her being.

The diagnosis of cysts of the ovary is by no means always plain sailing, and very humiliating blunders have been made by the best surgeons of their day. Lizars, of Edinburgh, performed laparotomy on a woman in order to remove a suspected ovarian cyst, and found nothing but fat. Others have done the

same thing, and, to their dismay, have discovered merely an accumulation of wind in the intestines. The great Dieffenbach once opened the belly of a woman for supposed extra-uterine pregnancy, and found neither fat nor wind; not even, indeed, a trace of a tumor. With our improved methods of diagnosis such blunders as these would nowadays be unpardonable. Other mistakes can, however, be made, and are indeed being made every day, by professed ovariologists. That very excellent physician and distinguished ovariologist, the late Dr. Washington L. Atlee, after carefully examining a lady in the country, diagnosticated an ovarian cyst, and set a day for the operation. A few days before the appointed time, she gave birth to a lusty child. Once an enormously distended bag of waters broke, just as a deservedly eminent British surgeon had rolled up his sleeves and was about to wheel his patient into an amphitheatre crowded with spectators, to witness an ovariectomy. Last week, had I not made a careful vaginal examination, I should have mistaken a dropsy of the amnion for an ovarian cyst. A surgeon, of whom Great Britain can well be proud, once drove his trocar into the shoulder of a fetus, under the delusion that he was tapping one of these cysts.

For these reasons I bring before you to-day this woman, in order to show you how to make an examination for a suspected ovarian cyst, and how to distinguish such a cyst from other tumors and other fluid collections in the abdominal cavity. Her examination is as follows:

Eight months ago she discovered a tumor in her belly, which very gradually increased in size, until, as you can plainly see, she was completely engorged by its bulk. She has come to get us to tell her what to do, and what she shall do. Now the first thing that I have done is to pass the catheter, so as to be sure that no over-distended bladder will obscure the diagnosis. Very little urine comes away. The result of this examination has had the same effect on her as examination day will have on some of you. Upon examination, I found, yields a sense of fluctuation, but on the left side, the left side of the abdomen, which, like that of a man's paten sunt, shakes "like a bowlful of jelly."

To muffle this fat-thrill I ask one of my assistants to lay the ulnar edge of his hand along the linea alba. The pressure of the hand will act precisely like the damper-wedge of the piano-tuner, which muffles the sound of one string while its fellow is being tuned. By this means I distinctly get the wave-tap of a fluid, and am able unhesitatingly to say that there is a liquid collection in the abdominal cavity. But what kind of a fluid is it? free or encysted?

If it were free, like that of ascites, while the woman lies on her back, the intestines should float up to the surface, and the fluid should gravitate to the flanks, making them bulge. In other words, percussion should give a dull sound in the flanks, and a clear one in front. But listen, and you will hear that this is not the case, for the upper surface of the tumor gives a dull sound, while from each flank I elicit a clear percussion note unchanged by any position. Then again, while our patient lies on her back, the front surface of the abdomen is convex and unchanged in form; but were ascites present, this surface would flatten through gravity of the fluid towards the back and flanks. Further, ascitic fluid is displaceable by pressure on the abdomen, but this is not. Now, all these tokens mean a collection of fluid, and that, most probably, in a cyst. Can it be ovarian? or is it uterine? May it not be pregnancy?

The question of pregnancy is a very serious one, because, as you have just been told, it is sometimes a most difficult one to decide. Now this woman is under forty and sees her monthlies regularly; in fact, she saw them last week. This does not look much like pregnancy. Yet in making a diagnosis we must never take anything for granted. It is by doing so that we get into trouble. She may be willfully deceiving us, in the hopes of having a cheap abortion induced by the examination. She may be pregnant and yet menstruate. But, if pregnant, she must, from her size, be eight months gone, and yet the ordinary signs of pregnancy are absent. Even her breasts are withered up, and give out no milk on being squeezed. I cannot discover any foetal heart-sounds, or foetal movements, or foetal limbs, or, in short, any evidences of pregnancy. Yet she tells

us that the tumor began in the uterine region, and not in either groin, where the ovaries lie. But the bump of topography, as well as that of punctuality, is very slenderly developed in most women, so I shall lay but little stress on this statement of hers.

Let me now examine per vaginam the womb and its annexes. Were she pregnant, the cervix should feel as soft as my lips, but it is as hard as the tip of my nose—that is to say, its hardness means an empty womb. By this examination and by the previous one, pregnancy can be so confidently excluded that I may next resort to the cautious use of the sound. It goes in readily enough, and gives a measurement of nigh 2.75 inches. It shows that the womb lies behind the tumor, and also gives the important information that this organ moves freely and independently of the tumor. This means that the tumor is not continuous with the womb, nor closely attached to it.

But, since it is plainly not the pregnant womb, what kind of a cyst is it? I do not think that it is a cancer-cyst of the ovary, for, as Thornton has pointed out, such a malignant disease is usually associated with peritoneal dropsy, and with the retraction and burying of the cervix in the vaginal vault.\*

Now I have not the time to enumerate all the kinds of cysts which may be found in the abdominal cavity. For this information you must consult monographs on the subject. But after such an examination as I have given, one has the right to infer that this fluid tumor, being in no wise uterine, and being preceded by no such ill-health as characterizes splenic, hepatic or renal cysts, is the one most frequently met with—viz., an ovarian cyst. This diagnosis can be confirmed by an examination of the fluid or by the complete evacuation of the cyst. The microscope reveals a cell, the so-called ovarian cell, which although found elsewhere in the body, is said not to exist in large numbers in any cyst of the abdomen but the ovarian. Again, in ascites, the fluid is usually straw-colored and thin. In a cyst of the broad ligament it is as clear and limpid as spring-water; and this cyst, by the way, is often cured by a single

\* *Medical Times and Gazette*, May 6th, 1876.

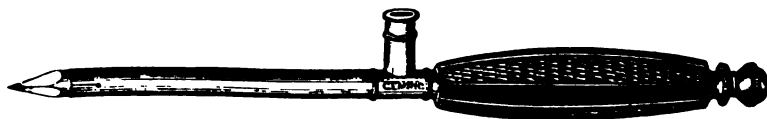
tapping—the only one, unfortunately, that is. In a polycyst of the ovary, the fluid is likely to be thick, dark and turbid; while that of an oligocyst, which I suspect this to be, is thinner and generally of a lighter color. Then again, by wholly removing the fluid, the cyst collapses more or less, and one can the more readily distinguish the various organs and therefore define the site of the tumor. But this slight operation of removing the fluid from the cyst, is by no means devoid of danger. Even when the smallest aspirator needle has been used, inflammation of the cyst may follow, which will compel the immediate resort to ovariectomy. This has repeatedly happened, and once in one of my own cases, in which, however, the removal of the cyst saved the woman's life. Further, the fluid of a polycyst is always intensely acrid, sometimes so much so as to irritate even the hands of the operator, and the escape of a few drops into the cavity of the abdomen may set up a violent and rapidly fatal peritonitis. Then again, a fatal hemorrhage may take place from some wounded vessel either in the cyst-wall or in the adherent omentum, or, indeed, as has happened, in the abdominal wall itself. Since all these dangers are greatest in the polycyst, which is more vascular, more vulnerable, and more adherent than any of these cysts, it should not as a rule be tapped, unless for the purpose of establishing a difficult diagnosis, preparatory to its removal.

For your guidance in such matters, I must therefore lay down some important rules for tapping. If you wish simply fluid enough for a microscopic examination, remove it by means of a hypodermic syringe, although even this trifling operation is not without danger, for the cyst has emptied itself into the peritoneal cavity through the minute puncture.\* Should your motive be to gain time, or to relieve the pressure symptoms, or to cause such collapse of the cyst as shall aid in the diagnosis, empty the cyst *wholly*, so that no subsequent oozing may take place, and preferably by aspiration. The aim of these rules is, the avoidance of any escape of the fluid into the peritoneal

\* *Lancet*, May 1, 1878, p. 684. See also, Lesson XXV.

cavity, and of the ingress of air into the cyst. A third rule is to perform ovariectomy and remove the cyst whenever inflammation sets in. Sometimes, the contents of the cyst are gluey and colloid, so dense, in fact, as to refuse to pass through the canula. To establish a diagnosis, it may then be needful to use great exhaustion power of the aspirator-pump, in order to suck out a few drops of the gelatinous fluid. Occasionally the largest trocar will have to be used, so that some of the fragments may be scooped out by a uterine curette, or by a double wire bent at its end into a hook. A very excellent trocar is the one with an elbow for the attachment of a rubber tube (Fig. 75). Take it for

FIG. 75.



TROCAR WITH ELBOW ATTACHMENT.

all, it is, perhaps, the best one, next to the hollow needles of the aspirator.

As my patient has come, not to have ovariectomy performed, but simply to have her disease diagnosticated and to be relieved of the bulk-symptoms, I shall wholly empty the cyst by this small aspirator-needle. This is not a very painful operation, and she has been etherized more to spare her feelings than her feeling. Since the bladder has been emptied, it cannot be in the way, and that is a great comfort to know; so I shall boldly thrust this needle into the linea alba, midway between the navel and the symphysis pubis, that is to say, at a point where the structures are tendinous and most free from blood vessels, and where the bladder and omentum are not in the way. The painful part of the operation being the penetration of the skin, choose the point where you intend to puncture, and plunge in the trocar-needle rapidly, as I now do. Not long ago a medical friend, in a case of ovarian cyst which we saw together, taught me a little wrinkle about tapping worth knowing. He took an oblong lump of ice, wrapped a rag around one end by way of a

handle, and dipped the other end into some table-salt. He then for a minute or two pressed this salted end firmly on the spot selected for the puncture. This off-hand freezing mixture so benumbed the skin, that, when I thrust in the trocar-needle, not only did the lady not wince, but she chatted and laughed throughout the operation as if nothing had happened.

The fluid is, as you see, somewhat syrupy and of a brownish color. It looks very like that of an ovarian cyst, but I shall defer giving a positive diagnosis until it has been examined by the microscope. By this tapping the woman will not be cured, but simply relieved. The fluid of an ovarian cyst is sure to return, except in some very rare cases of single cysts, which have been injected with iodine. And this stands to reason, for monocysts are quite rare, and it is impossible to make the trocar-needle enter every cyst of a polycyst. I am not using a tightening binder around the belly of this woman, for since she lies on her back and the fluid is being withdrawn very slowly, there will be no danger from syncope. I reject the binder and also do not make much pressure by the hand on the abdomen, lest some of the contents of the cyst should be forced out through the puncture along the side of the canula into the cavity of the abdomen. For the same reason, use either a trocar and canula of the largest size, through which the fluid can freely escape, or else an aspirator-needle of small size. When the former are employed, the skin should be previously incised with a lancet, and, lest any air should be sucked up into the cyst, the free end of the rubber-tube should touch the bottom of the bucket, so as to be always immersed in the escaping fluid.

Tapping per vaginam is sometimes very tempting to perform, but it is not so safe an operation as the supra-pubic one. The reasons for this are, that the vessels in the cyst-wall develop in size as they near the pedicle; that the largest cysts, growing where they have the most room, lie, not in the pelvis, but usually under the abdominal wall; and that other organs, such as the bladder, womb and rectum, are liable to become dislocated and to lie in the track which the trocar would take. But in cases in which the hind vaginal wall bulges out before the

pressure of a cyst growing downward in the pelvic cavity, it is quite proper to plunge the trocar into the tumor through Douglas's pouch. At this site also irritant injections, such as those of iodine, could be made into the cyst with more safety; for, should any escape into the peritoneal cavity, it would be into a limited area, where a subsequent inflammation would tend to become localized.

Tapping, followed by permanently keeping open the incision into the cyst, has repeatedly been attended with success. But since extensive and prolonged suppuration must ensue, this operation has proved to be a far more dangerous one than that of ovariectomy. It should, therefore, not be resorted to excepting in cases of cysts which are too adherent to be removed. Another exception may, however, be made in the case of small cysts growing low down and bulging out the vaginal wall. It may then be advisable to follow Dr. Noeggerath's plan. He first snips open the vagina, transversely behind the cervix, to the length of one inch, and then makes a corresponding incision in the cyst-wall. The edges of the two incisions are then stitched together by interrupted sutures and a drainage tube kept in. Thus the cyst is left with a free and permanent opening into the vagina, through which antiseptic solutions of carbolic acid or of potassic permanganate are thrown up. In time the collapsed cyst-walls unite to one another and cease to secrete.

The injection of iodine into these cysts has sometimes been rewarded with a cure, and at one time this mode of treatment had very warm advocates. After the cyst is wholly emptied by aspiration, the action of the instrument is reversed, and from two to ten ounces of the officinal tincture of iodine are thrown in. The tincture is used of full strength, because the residual fluid in the cyst will be enough to dilute it. The cyst-wall is next kneaded and the patient made to turn from side to side and from back to breast, so that the tincture may come in contact with every portion of the secreting surface of the cyst. The fluid is then pumped out, but all will not come away; enough usually remains behind to produce some slight degree of constitutional disturbance. While the canula is being withdrawn, in

order to prevent the escape of any of the irritating injection into the abdominal cavity, the thumb and forefinger are made to grasp the abdominal wall at the puncture-site, and to press it firmly on the cyst-wall. Good cures have followed such a treatment, but since they can happen only in cases of monocyst, which cannot always be diagnosticated, and since it is attended in a polycyst with more hazard than even the operation of ovariectomy, it is now but rarely resorted to.

Electrolysis has of late also been lauded, as a sure and harmless remedy for these cysts. But a careful examination of the subject made by Dr. P. F. Mundé, shows that this agent has been greatly over-lauded as a specific, and that it "can in no wise supplant ovariectomy."\*

Rupture of the cyst has occasionally taken place, either through over-distention, or through such violence as a rude fall or an upset from a carriage. This accident, if the fluid happened to be bland, sometimes ended in a lasting cure. The hint was not thrown away, and several surgeons cut circular openings into the cyst to establish a permanent communication with it and the abdominal cavity. But this practice was soon given up, because it was found that the intrusion of ovarian fluid into the serous cavity usually set up a violent and rapidly fatal peritonitis. For such an accident, when followed by inflammation, there is but one remedy—the immediate removal of the cyst by ovariectomy. Desperate as this remedy seems, it has repeatedly been followed by success. The only cyst in which it is now held warrantable to establish a communication with the abdominal cavity, is that of a cyst of the broad ligament recurring after repeated tapplings. The fluid it contains is so limpid and bland as not to inflame the peritoneum.

But to return to our patient; while I have been talking, very nearly two bucketsful of fluid have escaped, the cyst has been wholly emptied, and the belly has become scaphoid. I can barely discover any portion of the collapsed cyst, and I am, therefore, compelled to modify my diagnosis in so far as to de-

\* *Transactions American Gynecological Society*, Vol. ii, p. 435.

cide that the cyst is probably single instead of being multiple. A small piece of plaster will be placed over the puncture, an obstetric binder will be pinned around her belly, and she will be kept at rest until all danger from inflammation has passed. By this operation she will be greatly relieved, as well as benefited; but, unfortunately, for a short time only. In a few months or even weeks the fluid will re-accumulate, and she will be obliged either to be again tapped or to have the cyst removed. The first tapping, indeed, commonly hastens on this crisis, and it should, therefore, be put off as long as possible.

## LESSON XXIV:

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### *Ovariectomy by Abdominal Section.*

THE term Ovariectomy means the extirpation of an ovary on account of some disease of its own structures which causes it to increase greatly in bulk. Fibroid degeneration will sometimes occur, but cystic degeneration is by far the most common form of disease to which the ovary is liable, and it consists probably in a dropsical enlargement of one ovisac or more. By Double Ovariectomy is meant the extirpation of both ovaries for analogous reasons. The difference between ovariectomy and spaying lies in the fact, that by the former the ovaries are removed for intrinsic disorders; the by latter, to bring on the climacteric for diseases caused by the functional existence of the ovaries, which may or may not be diseased.

First performed in 1809 by Dr. Ephraim McDowell, of Kentucky, this operation was condemned so violently by the profession, that ten years have hardly elapsed since it has been placed upon a firm footing.

"In 1843," writes Nussbaum,\* "Dieffenbach, the boldest of all surgeons then living, wrote that ovariectomy was murder, and that every one who performed it should be put into the dock. Now we save lives with it by the hundred, and the omission of its performance in a proper case, would, in these days, be looked upon as culpable negligence." With its lights and its shades, its friends and its foes, its converts and its perverts, the history of ovariectomy reads like a romance.

Cystic degeneration of the ovaries is comparatively a rare disease, and few of you will be called upon to perform the formidable

\**British Medical Journal*, Oct. 26, 1878, p. 617.

ble operation of ovariectomy: but since some of you will undertake it, and since all of you should know enough about it to think of it and speak of it intelligently, I shall devote my hour this morning to its consideration.

During this session I have twice performed this operation in this hospital, but as it was done in a private room, very few of you had the opportunity of seeing it. My reason for not operating before you in this amphitheatre, much as I wished to, is that the woman's life being the first consideration, I deemed it hazardous to expose so vulnerable a membrane as the peritoneum to the cold draughts of this room, and to an atmosphere fouled by the breath of several hundred gentlemen fresh from fever wards and dissecting rooms. It would indeed be asking too much of Providence; but perhaps when the weather becomes warmer I may venture to perform it here under the carbolized spray.

The most common causes of death after ovariectomy are peritonitis, septicæmia, shock, exhaustion and hemorrhage; and it is against these foes that the operator must from the first aim all his efforts. In no other operation does the issue depend so largely on the experience of the surgeon. Every ovariectomist has found that his success grows with his number of cases. By operative skill, by cleanliness, and by wise hygienic measures, the fatality has been reduced to about twenty-five per cent.—which, considering the size of the wound, the importance of the parts involved, and the delicacy of the exposed structures, is a remarkably low average.

When should the operation be performed? Not when the cyst has first been discovered; but when it has grown so large as to distend the belly, and when the woman has become thin and her health has begun to fail. The reasons for waiting are, that the woman will have lived longer should the operation turn out to be a fatal one; that, the abdominal wall having become thinner, the incision will be proportionally shorter and shallower; that the patient being now less full-blooded, both hemorrhage and inflammation will not be so likely to occur; and that the pressure and rubbing to which the peritoneum has

been for some time subjected will make it less vulnerable, and therefore less likely to take on inflammatory action.

When the operation has been decided upon, the patient must be scrupulously prepared for it. Early in the morning of the day preceding that of the operation she must take a dose of oil. I don't stickle for oil against other cathartics, but, as an old practitioner once said to me, "It's a very sarching remedy." That night she takes a grain of opium, and another grain early the next morning. To avoid ether-vomiting her breakfast should consist merely of a cup of beef-tea, or of a goblet of milk, and thereafter she must eat nothing more. She now gets into a warm soap-bath and is washed by her nurse perfectly clean. The abdomen if hairy is next shaved. She then puts on clean night-clothing, goes to bed, and stays there until the hour fixed upon for the operation. The room in which the operation is to take place should be a separate one, so that she may not be unnerved by the needful preparations. Several days beforehand it should be thoroughly cleansed and ventilated. It should also be well warmed, and the air made moist and disinfected by a solution of carbolic acid kept boiling in a dish on the stove. As an additional precaution it may, further, for several hours be subjected to a carbolized spray. About noon, which seems to me to be the best time, she is laid on a kitchen table, or on two if one is not long enough, well covered with blankets. She may lie wholly recumbent, as most operators prefer, or semi-recumbent, with her head and body laid upon a slope of pillows, and with her feet resting on a Windsor chair without a back. The late Dr. Atlee preferred the latter position, because all the abdominal fluids then gravitate into Douglas's pouch, and are more easily removed; and because when the cyst is tapped the fluid is less likely to find its way into the peritoneal cavity. It is a very convenient posture, and I at first always placed my patients in it; but I have abandoned it, because the the woman's person and limbs cannot be so well covered up and kept warm, as in the recumbent posture. Her night-clothes are now well tucked up, and her chest and arms covered with a thick blanket. Another warmed one is pinned

around her hips, and the free ends wrapped singly around each leg. Bearing in mind that the heat which the mass of the blood must lose by the prolonged exposure of the whole peritoneal surface, can be restored only by surface warmth, we cover up every portion of the body but the abdomen, which alone is bare. In winter also the temperature of the room should be kept up by a stove to  $75^{\circ}$ , and it will always be an advantage, whatever the season, to lay between the thighs and legs, and against the feet, hot sand-bags or rubber-bags filled with warm water. Whenever the spray, which rapidly chills the body, is used, such precautions for keeping up the heat are indispensable.

Bearing in mind also that one of the most common causes of death is septicæmia, we must observe the most scrupulous cleanliness in every detail relating to the operation. The woman's belly will be cleansed of its fatty secretions with ether, and it will be afterwards washed with a five per cent. solution of carbolic acid. All the sponges and instruments must be scrupulously clean, and throughout the operation be kept, the former in basins and the latter in dishes or in trays containing the same fluid. The hands of the operator and of his assistants must be thoroughly cleansed by soap and nail-brush, and further disinfected by the same solution. Talking of assistants, one must have plenty of them—five are not too many, although one can get along with a smaller number. One of them administers the ether; another, standing on the left side of the patient, follows every movement of the operator with sponge, ligature, etc., and assists him in every detail; a third supports the abdomen, and keeps the intestines from protruding; a fourth presides over the instruments, and the fifth cleans the sponges and hands them up. All of the assistants must have clean clothing on, and not one of them should have seen a case of zymotic disease that day. If the spray be used an additional assistant will be needed to superintend the working of the atomizer, and to prepare the antiseptic solutions.

The following instruments and articles should be provided by the surgeon, and be laid out in order on a small table, covered

with a white cloth, so that they may be readily distinguished, and picked up when wanted. I need hardly repeat, that they must be perfectly clean, and free from all suspicion of dirt :

Carbolized gut ligatures.  
Assorted silk ligatures, also carbolized.  
Lister's antiseptic dressing, or Thymol-cotton.  
Iron and silver wire.  
A perineal needle.  
An aneurismal needle.  
Assorted needles with varying curves.  
One long blunt needle for transfixing pedicle.  
One needle-holder.  
Assorted hair-lip pins, and acu-pressure needles.  
Three artery clips.  
One tenaculum, and one artery forceps.  
One grooved director, and two scalpels.  
One clamp.  
Six fine new sponges ; one long flat sponge.  
One wire ecraseur.  
Paquelin's benzoline cautery, or several cautery irons.  
Two trocars ; one small, the other large,—with rubber tubing.  
Fitch's cyst-forceps, and two volsella forceps.  
One forceps for twisting wire.  
One curved, one straight, and one right-angled scissors.  
A flexible male catheter, and a self-retaining female one.  
Three glass drainage tubes of different sizes.

The following articles should be provided by some member of the patient's family, and following the practice of the late Dr. Atlee, I invariably write out the list so that nothing may be overlooked :

One yard of adhesive plaster.  
One roll of raw cotton.  
One yard of patent lint.  
One yard and a quarter of fine white flannel.  
Ether, two pounds ; together with a clean napkin and a newspaper, by which it is administered.  
Carbolic acid, twelve ounces.  
Monsel's solution, four ounces.  
Some sweet oil.  
Some brandy, with cup, spoon and sugar.  
Pin-cushion, with large pins,

Two tin basins, and one tin cup.

A small tub, and an empty bucket.

A bucket of cold water, and a pitcher of hot water.

One large meat-dish ; to be used as a tray for instruments.

One kitchen, or a breakfast-table.

Warm bricks, or hot sand-bags, or bottles filled with hot water.

Clean towels, old sheets, old comforters, old pillows, old carpets, and one warm blanket for the lower extremities.

Having covered up all his instruments, and after concealing as many of the preparations as possible, the surgeon leads his patient into the room, places her on the table, and begins the administration of ether. Not until she is unconscious are the assistants and bystanders to enter the room. In order that the hands of the operator may not be soiled, an assistant draws off her water. If the spray be used, a three per cent. solution of carbolic acid, or one of one part of thymol to a thousand of water, is now made to play upon the abdomen, and the operation is begun.

An incision about three inches in length is made, with a free hand and not by nicks, in the median line below the umbilicus, where the blood-vessels are few in number. It should end about one inch and a half above the pubes, that is to say, low enough for the pedicle to be easily reached, but high enough to avoid cutting the fold of peritoneum reflected from the bladder to the abdominal wall. The brown line running below the navel is the surface guide ; but after cutting through the skin and fat one cannot always hit the linea alba beneath. In the majority of cases the knife goes astray into the anterior sheath of one of the recti muscles, and does not keep in the central tendinous line. The red muscular fibres pouting out of the opening will be the danger signal of having got off of the track into vascular regions. So stop cutting and pass in a probe across the muscle to the right and to the left, and the nearest point of arrest will note the linea alba. Again, if you suppose that you can, on a grooved director, cut canonically through the different layers of tissue described and engraved with so much precision in your text-books, you are much mistaken. When making this incision, all that you need to know is, when you are approaching the

peritoneum. A landmark is therefore needed to warn one when to look out for it. My landmark is the thin layer of fat lying in the subperitoneal tissue. I therefore cut down boldly through the skin and underlying fat, somewhat cautiously through the aponeurotic structures, until I reach this layer of fat which lies next to the peritoneum. Then I know that I am "getting warm," as school-boys say. So, practically, I regard but the following layers, skin with its underlying fat, the intermediate tendinous or muscular structures, the extra-peritoneal fat, and peritoneum.

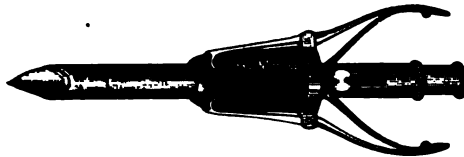
When you reach the peritoneum, don't open it until all bleeding has been stopped, using either a soft napkin, or torsion, or the gut ligature when needed. Then hook it up by a delicate tenaculum, make a small opening, pass in a grooved director, and slit it up for a distance of from one to one and a half inches. A little serum usually escapes, and the nacreous wall of the cyst then comes into view. This is called an exploratory incision, for by it the diagnosis is confirmed, the presence of adhesions ascertained, and the possibility of completing the operation determined. When you have decided to go on with the operation, more working room will be needed, and the peritoneal wound is then to be enlarged by scissors, using the finger as a guide to prevent injury to any chance bowel-loop that may be in the way. The size of the incision will depend upon the character of the cyst, and on the number of its adhesions. Hence it may range all the way from a length of three inches to the distance from ensiform cartilage to symphysis pubis. If it must be extended above the umbilicus, it should be carried around to the left of this point, and then be brought back to the linea alba. The object of this is to avoid the round ligament of the liver and its vessels, which come in there from the right side. Other things being equal, a short incision is safer than a long one; but it is a good rule to have an opening large enough for easy manipulation, and for easy withdrawal of the cyst. For instance, a large monocyst without adhesions, after being emptied, can be pulled out hand over hand like a wet rag through a very small opening; whereas a much smaller

polycyst, which cannot be wholly emptied, and which is more or less adherent, will need a large incision. Whenever the cyst-wall in the line of the incision is glued by adhesions to the peritoneum, the latter is liable to be mistaken for the former, and to be accordingly detached from its natural attachments to the abdominal wall. To avoid this very serious error, either proceed with the cutting until the cyst-wall unmistakably comes into view or is opened; or else extend the abdominal incision upward until a point is reached where the cyst is free from adhesions.

Adhesions binding the cyst to the abdominal wall are not of much importance. To lessen the risk of hemorrhage, they are to be sundered by the finger whenever possible. Should the scissors be used, the band of adhesion must be snipped close to the surface of the cyst, and not to that of the abdominal wall. Thus a free end is gained, which may if needful be subsequently tied, or in which the dangling blood-vessels may the more readily constrict. All thick and long bands of adhesions should be tied in two places, and be divided between the ligatures. These ligatures should consist of very fine carbolized silk, or preferably of fine gut. If the delicate omental apron be found glued to the cyst, it should be carefully detached and turned out of the abdominal cavity on a clean napkin. If its bleeding vessels be few, each one may be tied or be twisted. But if they be many, the torn portion of the omentum may be tied *en masse*, and the ligature cut off close to the knot.

When all the adhesions within reach, and that demand no great force, have been broken, it will be time to tap the cyst.

Fig. 76.



WELLS'S TROCAR.

This should be done with a large-sized trocar, such as Wells's (Fig. 76), which is furnished with spring-teeth to prevent slip-

ping, or with the excellent siphon-trocar of Hodge (Fig. 77). The latter instrument I have repeatedly used, and with much satisfaction. But whatever the kind of trocar, it should have a large bore, so that the vent may be free, and that none of the

FIG. 77.



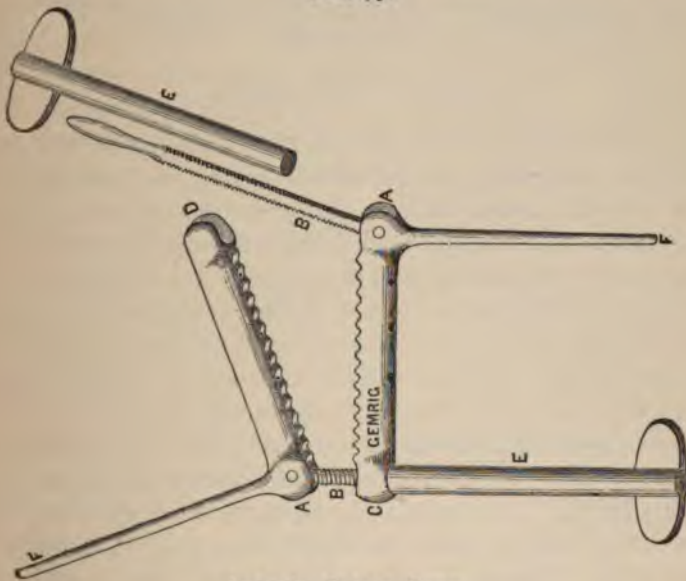
HODGE'S TROCAR.

acid fluid may escape along its side into the cavity of the abdomen.

Always tap at the upper angle of the wound, because, as the cyst empties, the trocar will descend. While the fluid is flowing, the edges of the incision should be pressed firmly against the cyst, so that the abdominal cavity may not receive a single drop of that which sometimes escapes along the side of the trocar. To avoid this accident, I am not sure that it would not always be best to follow the plan of some ovariologists, and turn the woman well over on her chest, before tapping. If the parent cyst does not collapse because it contains a few other cysts, the point of the trocar, without being withdrawn, can be made to enter each one. But if the enclosed cysts are numerous, the trocar should be withdrawn, the opening enlarged, and the hand introduced within the parent cyst to break these up. But, before this hand is again used for separating adhesions, it must be carefully cleansed with soap, and disinfected by the five per cent. solution of carbolic acid. The empty cyst is next gently pulled out through the abdominal wound. It is, however, so slippery that this cannot ordinarily be done with the hands alone. A forceps with a firm grip is needed, and one of the best is Fitch's (Fig. 78). When the cyst-wall is thick and not vascular, the ordinary volsella forceps will answer the

to the knot? The first is called the extra-peritoneal method; the other three, the intra-peritoneal. The clamp has the most advocates; but it possesses the following disadvantages: The stalk sometimes sloughs below the line of constriction and conveys putrilage into the abdominal cavity. The stalk always becomes united to the abdominal wall, and thus, when it is short, the womb is dislocated or is too much dragged upon. Then again, in one-third of the cases the oviduct has a trick of remaining open, and the woman will menstruate indefinitely from the abdominal cicatrix. These are the objections to the use of the clamp, but, if you prefer to resort to that method, you will find Atlee's clamp to be one of the best (Figs. 79 and 80). To pre-

FIG. 79.

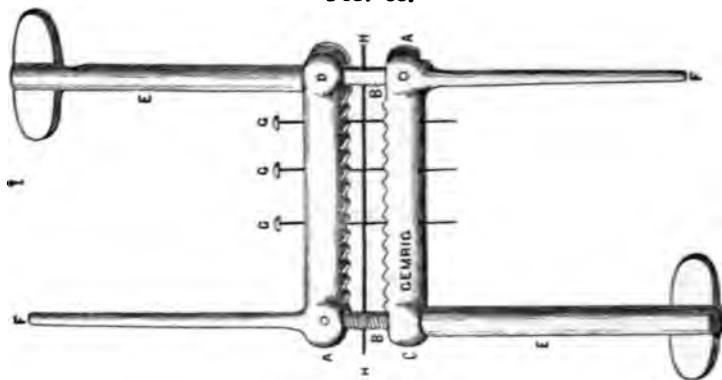


ATLEE'S CLAMP OPEN.

vent its slipping off, and to crowd the stalk into the smallest compass, it is perforated with holes through which hare-lip pins are passed (Fig. 80.). The actual cautery, performed with Paquelin's instrument, or with platinum-tipped irons which do not scale off or discolor the tissues, would be the very best mode of

dealing with the stalk. No foreign body would then be left within the abdominal cavity; but, on the other hand, it cannot be relied upon to stop the bleeding from the stump. With

FIG. 80.



ATLEE'S CLAMP CLOSED.

regard to the third method, the free ends of the ligature brought out at the lower angle of the wound make good drainage, but then they are foreign bodies which the peritoneum resents. Now I cannot possibly give you a treatise on ovariectomy within the brief compass of an hour, so I shall simply say that after a careful trial of all of these methods, and after a conscientious inquiry into the subject, I lean towards tying the stalk with fine carbolized silk, the finest compatible with safety, cutting the silk off at the knot and dropping the stump into the abdominal cavity. Now when I say silk, I mean silk, and not silver nor gut ligature. Silver, being inelastic, cannot bind a shrinking stalk; while the gut is a treacherous ligature, and will sooner or later bring one to grief. It slips in the tying; it is liable to untie; it gives instead of shrinks, and it is too short-lived for the obliteration of large vessels. You will, perhaps, urge the reasonable objection, that, since the abdominal cicatrix left by the use of the clamp, reopens every month to permit the escape of menstrual fluid, the same phenomenon will by the intra-peritoneal method happen within the abdominal cavity, and expose the woman to all the risks of an hæmatocele. But fact is here

opposed to theory, for it has been found that the raw surface of the stump, by contracting adhesions with the surrounding tissues, becomes hermetically sealed. You might also suppose that the distal end of the ligatured stalk would slough and expose the woman to septic absorption. But such sloughing rarely happens, and for the following reasons: The peritoneal surfaces on each side of the narrow and deep gutter made by the fine silk, will bulge over and span the gap. Adhesion then takes place between the two, and the blood-vessels, which shoot over from the proximal side of the ligature, will carry life into the distal end. Or lymph exuded by the irritation of the ligature will throw a living bridge across the gutter. Or, what is the least desirable, the raw end of the stalk glues itself to any peritoneal surface with which it may come in contact. I say *least desirable*, because sometimes such an adhesion constricts the calibre of an intestine, and gives trouble. If the stalk be a thick one, transfix it by a blunt needle armed with a double ligature, and tie each half by itself. If it be a broad one, tie it in three or more portions with cobbler's stitches. Then cut off the cyst about three-fourths of an inch away, so as to leave a button of tissue sufficiently large to prevent the loops from slipping off from the stump. While severing the stalk, so protect the abdominal cavity by means of sponges, that not a drop of blood shall fall into it.

But sometimes the cyst has no stalk, or else it is bound to bladder, womb, and to the pelvic tissues, by such intimate adhesions as cannot be severed. Formerly, under such circumstances, the abdominal wound was hastily closed up and the case abandoned. Now, thanks to Dr. Miner, of Buffalo, N. Y., we can fall back on enucleation, and need rarely be foiled.\* This operation is performed by slitting open the peritoneal capsule of the cyst at points close to its attachments, by introducing one finger or more into the opening, and by stripping off this serous and vascular envelope up to where the vessels enter the cyst-wall and become capillary. The artificial stalk thus made is

\* *Transactions International Medical Congress*, 1876, p. 801.

to be treated precisely like a natural one—that is to say, by clamp, ligature, cautery, or, if it does not bleed, by nothing whatever. Should the cyst be so wholly adherent to abdominal viscera as not to be even enucleated, all its free portion may be cut off, and the opening thus made in the sac be closed by including its lips in the stitches of the abdominal wound. In such a case the lower angle of the wound must be kept open by a glass drainage-tube running down into the sac. Or the adherent portion may be tied in sections, as Olshausen recommends, and the free portion cut away.\*

The sac having been removed, the other ovary should be examined, and, if diseased, be tied and cut off. From the sundered points of attachment more or less bleeding has been taking place, which must now be attended to. It can usually be stopped by pressure with a sponge, or the finger, or with a dry napkin, or with flannel cloths wrung out of very hot water, as Parvin recommends. For single vessels, torsion will usually succeed; but, if not, fine carbolized silk or gut ligatures will be needful, and it is wonderful how many may be applied without materially compromising the safety of the woman. The free ends should always be cut off close to the knot. Stubborn oozing surfaces can very generally be staunched by searing them with Paquelin's cautery. In some cases nothing answers so well as the pressure from the finger moistened with a drop or two of the officinal solution of the ferric subsulphate. When the oozing comes from a large surface on the abdominal wall, it may finally be arrested by the doubling of the raw surface on itself. The fold thus made is then secured either by a long acu-pressure needle, or by cobbler's stitches passed through from skin to skin. Forty-eight hours after, this needle or these stitches should be removed. For this ingenuous device we are indebted to Kimball, of Lowell.

Should all these measures fail, put in a drainage-tube, close up the abdomen in the manner about to be described, and temporarily lay over the dressings some heavy weights. This plan I

\* *Monthly Abstract*, July, 1877, p. 334.

have not been obliged to resort to, but it has the sanction of Nussbaum, who uses two large bricks, and is worthy of being borne in mind.\*

The toilet of the peritoneal cavity next comes in order, but the mode of making it will depend very materially on whether the operation was or was not performed with all antiseptic precautions. If the spray has not been used, the peritoneal cavity must be exposed and carefully cleansed of all serum and of every blood-clot; and, if the adhesions were many, or there be a likelihood of their oozing, some form of drainage, the best being a glass tube, will be needful.

If, on the other hand, the spray has been used, a prolonged cleansing of the peritoneal cavity, which is in itself hurtful, will not be needed; nor will drainage as a rule; for blood-clot and serum do not then undergo decomposition, but are either absorbed or become organized.

Before closing the wound, return the omentum, and very gently spread it over the intestines. Bring the lips of the wound together by silver sutures passed in on each peritoneal surface—viz., from within outward—through the whole thickness of the abdominal wall. Before this is done a large flat sponge is laid over the bowels to intercept any blood that may drop from the punctures, and also, as Emmet recommends, another one, with a stout string fastened to it, is pushed down to the bottom of Douglas's pouch. The sutures should enter a quarter of an inch from the peritoneal edge of the wound, emerge half an inch from its cutaneous edge, and lie about half an inch apart. They also should be passed by a round lance-pointed needle, held by a needle-holder and armed with a silk loop, over which the ends of each wire are bent. The reasons why the needle is made to enter the peritoneum first, are that the stitches are lodged more evenly and accurately on that vulnerable surface, and with less injury to it; and, further, that a stray knuckle of intestine is not so likely to be wounded by the upward as by the downward thrust of the needle. The object of including the peritoneum

\**British Medical Journal*, Oct. 26, 1878, p. 617.

in the stitches is to bring in contact two long riband-like surfaces of a membrane which will quickly unite—so quickly, indeed, as to forestall the formation of pus in the overlying tissues, and to bar the entrance of this and of other septic fluids which might come from the wound in the abdominal wall.

When all the stitches have been inserted, the flat sponge and the one in Douglas's pouch are removed, and the wires twisted. The wound may then be dressed according to Lister's plan. This consists first of a narrow "protective" of prepared oiled silk, moistened by a 1 to 40 solution of carbolic acid; next, of one large layer of antiseptic gauze wet with the same solution; and over this, eight folds more of the dry gauze, having a piece of mackintosh interposed between the seventh and the eighth layer. The dressing, now complete, is secured by an elastic flannel binder, the rucking of which is to be prevented by tapes pinned to it around each thigh. Wells employs a simpler dressing, equally antiseptic, which I intend in future to use. Over the wound he places a dry dressing of thymol-cotton; then long strips of adhesive plaster going two thirds of the way around the body, and over all the flannel binder. The thymol-cotton is prepared by steeping absorbent cotton-wool in a solution of one part of thymol to one thousand of water, and then drying it. Salicylized cotton of double this strength, I have found to answer very well.

Should it be deemed needful to make use of drainage, a glass tube about six inches long, and open at both ends, is passed between the two lower stitches, before they are twisted, down to the bottom of Douglas's pouch. Keith's tube is the one that I prefer. Its upper end has a shoulder which keeps it from slipping into the abdominal cavity, and also enables it to hold a square piece of thin rubber-sheeting. This is folded over a sponge placed on the mouth of the tube, and wrung out of a weak solution of carbolic acid. Bloody serum collecting in this tube is sucked out by a fine rubber-tube attached to a syringe. Should septic symptoms occur, the abdominal cavity can be washed out twice daily, by injecting into this tube a two per cent. solution of carbolic acid, or one consisting of two drachms

of liquor sodæ chlorinatæ to a quart of water warmed to blood-heat. One of these is pumped in until the water comes away clear. But let me repeat it, if the spray has been used and every antiseptic precaution taken during the operation, drainage and intra-peritoneal injections will be very rarely needed.

The subsequent treatment of the woman needs great attention. She must be kept quiet and free from all intrusion. For the vomiting, which is partly from the ether and partly from shock, chloral may be given, or lumps of ice may be swallowed, or a bladder of ice put on the chest and the pit of the stomach. Sips of very hot water, or a tablespoonful every hour of a mixture containing equal parts of lime-water and cinnamon water, are also good remedies. A hypodermic of morphia will often allay it, and I have seen it yield to two grains of pepsin given every two hours in a tablespoonful of raw beef juice. A hair of the same dog, in the shape of twenty drops of ether, will sometimes relieve it, and so also will a few drops of chloroform confined by a watch-glass over the pit of the stomach. Flatus is another distressing symptom, which, however, can very generally be dispelled by turning the patient over on her side, and inserting a flexible catheter high up in the rectum. Until all danger from vomiting is passed, the woman's diet should be very spare, not more than sips of barley-water, of milk, or of beef-tea; it may then be cautiously increased. The urine should be drawn off, and the bowels kept bound for a week by a morning and an evening dose of opium. If everything goes well, the antiseptic dressing need not be removed for four or for five days, and the stitches not cut until a week has elapsed, but both operations should be performed preferably under the spray. Should secondary hemorrhage take place, the lower stitches must be cut, and the bleeding point searched for. In such a case the glass tube must be subsequently introduced, in order to drain off broken-down blood-clots. Peritonitis following ovariectomy is almost always fatal. It should be treated by large doses of opium and quinine. In Dr. Thomas's hands it has yielded to lowering the temperature by affusion with cold water.\* I have

\* *New York Medical Journal*, August, 1878.

no experience with this remedy. If serious septic symptoms occur in cases in which the drainage tube has not been used, the two lower stitches may be cut, a glass tube inserted, and the abdominal cavity washed out. All collections of fluid made out to exist in Douglas's pouch, should be removed by aspiration, and the cavity washed out with the disinfectant solutions previously given.

In concluding this subject, let me advise you not to undertake the operation of ovariectomy until you have mastered all the details of antiseptic surgery.

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## LESSON XXV.

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### *Vaginal Ovariectomy.*

HITHERTO we have discussed the removal of an ovarian cyst through the walls of the abdomen, but sometimes, when the cyst grows downward—beneath the broad ligament instead of above it—or when a small cyst is lodged in Douglas's pouch, the safer, and, therefore, the better plan, may be to remove it by a vaginal incision. The success which attends the analogous operation of spaying, leads me to think that, in selected cases, ovarian cysts will in the future be more frequently extirpated in this way.

As a case in point I bring before you to-day a girl whom you have seen before. She is an unmarried woman aged twenty-two, and was well until about two years ago, when she took a long journey by rail, and, through modesty, allowed her bladder to become over-distended. From that day she began to have womb and bladder troubles, which steadily increased in severity. The latter finally became so exacting that she had to give up a situation as child's nurse, and to depend for support on the charity of some benevolent ladies. On the 15th of last February she was brought to my office by my friend Dr. W. S. Stewart, who is the medical consultant of the home where she was lodging. He told me that she had great difficulty in getting a movement of the bowels, and was worn out by a very frequent and very urgent desire to empty the bladder. The act of voiding her urine was of itself a painful and a difficult one; yet it would be repeated sometimes every hour at night, and every half-hour when she was on her feet—as, for instance, in ironing. During her last two catamenial periods she was unable to pass her water, and had to call in Dr. Stew-

art to draw it off. She was pale and haggard from her sufferings, and very querulous.

I found the cervix uteri hugging the symphysis pubis a little to the left, and behind it a dense and immovable tumor which shelved down into Douglas's pouch. The fundus of the womb lay above the pubes on the right side, but it was so immovable, and projected so far forward, that I at first mistook it for an outgrowth of a uterine fibroid. The sound, however, rectified this mistake, and gave a measurement of *plus* four inches. The girl, being very nervous, kept her abdominal muscles so tense that no information could be gained from supra-pubic palpation. But, after repeated examinations, an obscure sense of fluctuation was elicited per vaginam.

Being admitted into the Hospital of the University of Pennsylvania, she was, on February 21st, etherized and brought before you. Nothing more was gained from this examination than that the tumor could not be dislodged from the pelvic cavity, and that by supra-pubic palpation it could be outlined behind the highly situated fundus of the womb. Feeling now very sure that it contained fluid, I aspirated it, per vaginam, and withdrew one large tumblerful and a half of an odorless and straw-colored fluid. The tumor now so wholly collapsed that not a trace of it could be felt from above or from below. The womb regained its proper position, became movable, and shrank back to a measurement of *minus* three inches. My diagnosis leaned to a unilocular ovarian cyst with firm uterine and pelvic adhesions, but, to put matters beyond doubt, I submitted a specimen of the fluid to Dr. James Tyson, from whom, in matters of this kind, there is no appeal. The following is the report that he was kind enough to make for me :

"A grumous, yellow fluid, neutral in reaction, with a specific gravity of 1113, highly albuminous, and depositing copiously a sediment made up largely of crystalline particles, which proved on microscopic examination to be cholesterine plates. In addition were numerous granule cells, and large numbers of the so-called "ovarian cell;" also numerous bacteria. The above are the usual characters of ovarian fluid, and it is believed to be ovarian."

After this operation my patient lost all her tormenting pressure-symptoms. She could now hold her water, and pass it without distress. For three days she felt well. Then she began to complain, first, of a supra-pubic pain, and afterwards of her old troubles. I found the cyst rapidly refilling. By March 3d its upper surface could be easily felt, reaching very nearly up to the navel, and on that day I withdrew by the aspirator very nearly a quart of a turbid fluid containing broken-down blood, and giving off a slight odor of sulphureted hydrogen. Again the tumor collapsed wholly beyond recognition. This operation relieved her bladder troubles, but it was followed by marked symptoms of blood poisoning, such as fever, creeping chills, complete loss of appetite, constant nausea, pallor alternating with hectic flushes, sweating, a pulse always over 100, and a body heat ranging from  $99.5^{\circ}$  to  $101.5^{\circ}$ . There were also stabs of pain in the right pelvic region, but no tympanites. Her urine had now to be drawn off. The cyst began rapidly to fill, and its removal was clearly indicated; but she was timid, and her friends, whom she wished to consult, lived in a neighboring State. At my visit on the evening of Tuesday, March 13th, I found her pulse over 120, her temperature up to  $102.5^{\circ}$ , her skin and conjunctivæ with an icteric tint, and her lips studded with a crop of vesicles. She was incessantly vomiting, and fortunately so frightened that I wrung from her the permission to remove the cyst.

On the next day, at noon, I proceeded to operate, with the aid of Drs. C. T. Hunter, W. S. Stewart, B. F. Baer, H. R. Wharton, G. S. Hull, and T. Lancaster. My patient was put in the lithotomy position—the one which I prefer to any other in the operation for vesico-vaginal fistulæ and in many vaginal operations—and another careful examination made. The fundus of the womb lay now to the left and well above the symphysis. The cervix, like a mere nipple, pouted out from the tumor somewhat low down in the vagina, and to the right of its median line. The sound gave a measurement of five inches. By forcing my finger high up between the tumor and the pubes, I found that the supra-vaginal portion of the cervix was small,

round, and stem-like. It gave precisely the same feeling as in prolapse of the womb with hypertrophic elongation of the supravaginal portion of its cervix.

Finding it impossible to push up the cyst into the abdominal cavity, I determined to attempt its removal per vaginam, and, if frustrated, to stitch the lips of an opening made in it to the edges of the vaginal incision. Accordingly, two duck-bill specula being introduced, the space between them was divided by two strokes of Küchenmeister's scissors. As soon as Douglas's pouch was opened, there gushed out unexpectedly several ounces of very fetid pus. Numerous adhesions now presented themselves. All within reach of two fingers were broken, and the cyst was then caught by a volsella forceps, and emptied by aspiration. The fluid first drawn off, about two quarts in amount, consisted of a dirty, grumous pus, and the gas pumped out of the receiving bottle was so abominably offensive as fairly to turn my stomach. The trocar-needle then entered another cyst which gave about an ounce of clear, syrupy fluid. A spray of chloralum was kept playing upon the parts. I washed my hands in a stronger solution, and proceeded to draw down the cyst, and break up other adhesions, which successively came within reach. What with these adhesions, and with the small working space which the vagina of a virgin affords, every step of the cyst's withdrawal was attended with difficulty. But this was finally attained by the repeated introduction of two volsella forceps, the one over the other, Dr. Hunter and I making alternate traction. The cyst was found to be without a stalk, and closely attached to the womb, which now presented itself at the opening, but no coil of intestines was felt during the operation. I at first thought of attempting the enucleation of the cyst, but was afraid that from retraction of the parts involved some bleeding vessel might get beyond reach. So the left broad ligament was transfixed by a long-handled perineum-needle carrying a double ligature, and each half tied. But, in order to get a button of tissue sufficiently large to prevent the ligature from slipping off, a portion of the cyst had to be cut off, leaving a circular opening in it as large as a silver half dollar. Free

drainage from the pelvic abscess was secured by bringing all the ligatures out of the wound.

The cyst contained a few smaller ones, and, in addition, several calcareous plates. Decomposition had been limited to the mother-cyst, for the contents of the small ones were clear, glairy, and sweet.

My patient lay for several days in rather a critical condition, her only encouraging symptom being unmitigated crossness. No peritonitis kindled up, but septic symptoms still held on, and with them a copious and very offensive discharge from the vagina. She had no control over her bladder, and threw up all her food and medicine. Rectal suppositories of quinia were therefore resorted to, and enemata of beef-essence and whiskey. As mere vaginal injections did not sweeten her person, and as her body-heat and pulse kept up, I began, on the sixth day, to wash out Douglas's pouch twice daily with a solution of two drachms of the liquor sodæ chlorinatæ to a quart of water. This was thrown into the peritoneal cavity through a flexible male catheter. Every irrigation brought away a very grumous and offensive matter. The first one gave her much relief and lowered her pulse and temperature. From that day she began to mend. These irrigations were kept up for ten successive days. They then began to give her a good deal of pain in the wound, and were accordingly discontinued.

Her convalescence was steady, but by no means speedy. Some time elapsed before her appetite came back, and then, from a hysterical dysphagia, she could not swallow solid food. Either from the seton-like action of the ligatures, or from the walls of the abscess, a free and an offensive discharge kept on. It was not until April 1st that she was able to sit up in bed, and not until two weeks after that she could be helped into a chair. The ligatures, however, still held on; and she was up and about while they were hanging out of the vagina. Their presence annoyed her very much, and she grew morbid about them. On April 26th, just six days ago, she worked herself up to a pitch of desperation, and, giving the ligatures a violent tug, tore them off. A momentary pang of pain was followed by the escape of

about four ounces of blood. I saw her shortly afterwards and at once put her to bed. Pelvic soreness lasted for several hours, but nothing worse came of this reckless act. She fared better than she deserved, and by next week she will be well enough to go home.

As far as I can discover, my case makes the seventh of the removal of an ovarian cyst per vaginam. All of them took place in this country. The first published case was that of Dr. T. Gaillard Thomas,\* who met with it in 1870. The cyst "was equal in size to a large orange, . . . and could readily be pushed out of the pelvic cavity." It contained from six to eight ounces of bile-like fluid, was without adhesions, and, after being emptied, "passed without difficulty into the vagina." It had a pedicle which was transfixed by a needle armed with a double ligature, and tied on each side. Dr. Thomas then cut off the cyst, together with the free ends of the ligature, close to the knot, and returned the stalk into the abdominal cavity. One suture sufficed to close up the vaginal wound. The operation proved an easy one, lasting but thirty-five minutes. Owing to gross imprudence on the part of the woman, her convalescence was delayed by an attack of parametritis.

The second case is reported by Dr. R. Davis, of Wilkesbarre, Pa.† From the size of the cyst and from the extent of the adhesions, it deserves more than a mere passing notice. On May 29, 1872, Dr. Davis was called to see Mrs. J. T., a multipara, aged 29, and found her abdomen distended by two tumors of very nearly equal size. One of them proved to be the womb advanced to about the seventh month of pregnancy; the other, an ovarian cyst extending upward several inches above the navel, and so low down as to fill up the pelvic cavity. On August 7th labor set in with the os uteri almost beyond reach. Unsuccessful efforts having been made to lift the tumor out of the pelvis, the cyst was tapped per vaginam. It collapsed, the womb descended, and a still-child, presenting by the breech,

\* *Diseases of Women*, 1874, p. 733.

† *Transactions of the Medical Society of Pennsylvania*, 1874, Vol. X., Part I., p. 221.

was born without difficulty. The woman made a rapid recovery.

Summoned again on September 15, to see his patient, Dr. Davis found the tumor had regained its original size and site. It now bulged down so low in the vagina as to be within easy reach, and presented a surface capable of a large incision. The previous use of the trocar had shown that the cyst was unilocular, and probably without adhesions. For these reasons it was decided to attempt its removal per vaginam. The operation, which was performed three days later, is described as follows:

"The patient having been placed upon the table and etherized, was secured in the position for lithotomy. Two Sims's specula were now introduced into the vagina, and held by assistants; one making traction anteriorly, the other posteriorly. In this manner the posterior wall of the vagina, covering the tumor, was brought nicely into view. The vagina was now caught with a tenaculum, drawn well down, and incised through the fornix, to the extent of about four inches. After the hemorrhage, which persisted for some time, had ceased, the remaining dissection was made, the peritoneum being divided upon a bent grooved director. The shining cyst-wall was thus exposed. To my dismay, pretty firm pelvic adhesions were found to exist, and I confess to having had many misgivings at this point, as to the success of my undertaking. I proceeded, however, to sever the adhesions with my finger as far as that could be done; but they extended beyond the reach of the finger. The specula were now removed, and with the whole hand introduced into the vagina and through the wound, all the adhesions were broken up, first in the pelvis, then in the abdominal cavity between the peritoneum and the tumor anteriorly, and between the tumor and omentum; the hand being carried for that purpose to a point two inches above the umbilicus. The specula were now reinserted; the cyst was secured by a tenaculum and tapped with a curved trocar and canula. As the fluid all escaped, I had the great satisfaction of seeing the cyst, almost without traction, come down into the vagina and into my hand. The pedicle, which was long, was secured by a double ligature; the stump was returned into the peritoneal cavity, and one end of each ligature was left uncut and brought out at the lower portion of the incision. The cul-de-sac of Douglas was carefully sponged out, and two stitches in the upper portion of the incision completed the operation; the lower portion being left open for drainage. The patient rallied well. Indeed, the patient suffered less from shock in this case than in any other case of ovariectomy I ever witnessed. At no time, after the first evening, did the pulse rise above a hundred. She recovered

without a bad symptom, and in four weeks after the operation she called on me at my office perfectly well. One point in the history of the case, after the operation, deserves mention as bearing upon the question of vaginal drainage in ovariectomy. For four days after the operation there was an abundant watery, dark-colored, and very fetid discharge per vaginam, sufficiently to saturate completely three or four times a day a folded sheet placed under her. The question arises, had this discharge had no outlet, would it not have produced either peritonitis or septicæmia, or both? The tumor was composed of a single cyst of the right ovary, and weighed, with its contents, about nine pounds."

The third case is described by Dr. J. T. Gilmore, of Mobile.\* The cyst was movable and not larger than a small orange. It had a pedicle one inch and a half in length, which was tied and the cyst cut off. The vaginal opening was closed by three silver sutures, one of them being so passed through the pedicle as to keep the knot outside of the peritoneal cavity. Dr. Gilmore remarks that he "found the whole procedure extremely simple and easy. The whole operation was executed without a change of posture (Sims's position), and consumed only about ten minutes." The body-heat never went above 100, and all medical attendance was discontinued after the twenty-fifth day.

The fourth case occurred in the practice of Dr. Robert Battey.† The tumor turned out to be a pedunculated dermoid cyst of the left ovary, as large as a small orange. It contained a ball of hair, and a bone-plate half an inch in length and a quarter of an inch in thickness. A ligature was thrown around the pedicle, and the ends were brought out. A loop of intestines and the right ovary followed the tumor through the incision. They were returned; no bad symptoms occurred, and the woman soon recovered.

Dr. Clifton E. Wing reports the fifth case.‡ Defecation was impeded by a small, elastic, and immovable tumor in Douglas's pouch. On February 10, 1876, an aspirator-needle withdrew

\* *New Orleans Medical and Surgical Journal*, November, 1873, p. 341.

† *Atlanta Medical and Surgical Journal*, 1874, p. 146.

‡ *Boston Medical and Surgical Journal*, November 2, 1876, p. 516.

two drachms of dark, bloody fluid, diagnosticated to be the result of "an old hemorrhagic effusion." No bad results followed this operation. On March 30 the hollow needle was again plunged in, and several ounces of the same kind of fluid were pumped out. All the ordinary symptoms of a mild septicæmia followed this aspiration, and she began to lose strength and appetite. On April 19 an exploring needle passed in per vaginam permitted the escape of a few drops of an "exceedingly offensive matter." It was now plain that the fluid, "whether it came from an old hematocele, or from a hemorrhagic ovarian cyst," ought to be removed at once. After opening Douglas's pouch, the tumor was found to be an ovarian cyst as large as an orange. It was bound down by loose adhesions, which easily gave way before the finger. Its bulk being reduced by twisting, it was brought out into the vagina. It had no pedicle proper, but was readily enucleated by one finger. Some bleeding took place. The broad ligament slipped back into the abdominal cavity, and a coil of small intestines appeared at the opening. It was, therefore, closed by three silk sutures. These sufficed to prevent hernia, but left room enough to introduce a catheter. Fetid fluid in the cul-de-sac gave rise to septic symptoms, but, after a daily irrigation through a double catheter, all these vanished and the patient made a good recovery.

While I was reading a paper on this subject in Boston, that distinguished ovariologist, the late Dr. Washington L. Atlee, kindly furnished me with the following notes of another case of vaginal ovariectomy. They show that his operation antedates all others, but, as he never published it, I put it last.

"February 7, 1857, in consultation with Dr. William Corson, I visited Mrs. H. S., of Swede's Forge, Montgomery county, Pa. She was forty-seven years old, and had not passed the climacteric period of life. Her abdomen had been considerably enlarged, but was then smaller in consequence of vaginal discharges, which had occurred two or three weeks before I saw her. The fluid which escaped resembled gum arabic water, and had a somewhat offensive odor.

"Notwithstanding she was a woman of spare habit, she had rapidly lost weight. The hypogastric region was enlarged and occupied by a tumor

of less resistance than a fibroid, feeling more like a dense multilocular tumor. It was painful to pressure and scarcely movable. The pelvis was wholly occupied by a large and not very tense cyst, covered by the anterior wall of the vagina. On separating the vulva the mass could be seen. The cul-de-sac of the vagina was high up above the brim of the pelvis, and the vaginal canal could be traced going up back of the tumor. I passed my hand into the vagina, but the os uteri was entirely beyond reach. This examination gave considerable pain, and the hand came away stained with blood. The bladder was elevated into the left inguinal region, as ascertained by the sound. This accounted for an occasional difficulty in making water.

"Here there was a tumor occupying the hypogastric and pelvic regions, situated anteriorly to the uterus, forcing this organ and the bladder into the abdominal cavity, and stretching the front wall of the vagina over it. The case, however, was so unique that I could not make out a clear diagnosis. It was decided, however, to open the pelvic cyst through the wall of the vagina. This was done, and a considerable quantity of purulent-like fluid was removed. As the patient was suffering very much, further proceedings were postponed.

"March 13, 1857, I visited her with Dr. Corson again. He had, in the meantime, enlarged the original incision. The hypogastric tumor had diminished in size, and the soreness had also decreased. The discharge had continued. The tumor in the pelvis had become more dense. It was found to be adherent to the parts around it, but most of the adhesions were easily broken up with the finger, while several bands had to be severed by the probe-pointed bistoury. I thus succeeded in detaching the lower portions of the tumor as far as the finger could reach. To accomplish this I had to enlarge the incision in the vaginal coat. As the case was a novel one, and the ground untrodden, it was thought best to suspend for the present further attempts, with the hope that nature itself might throw off the tumor. Should that not be the case, it was determined to bring down the mass by force, break up the adhesions, and enucleate the whole of it from its bed, and remove it.

"March 25, 1857, we saw the patient again. Her health and strength had improved, but very little change had occurred in the tumor. Before proceeding to the final operation I made another careful examination. By means of a catheter in the bladder, and a finger in the rectum, I satisfied myself that neither of these organs complicated the case.

"The abdomen being well supported by Dr. Corson, I passed my fingers over the anterior portion of the detached tumor until the point of adhesions was reached, and then with the other hand introduced the crotchet-shaped hook, and firmly planted it in that portion of the mass. By means of the hook I was able to drag down the tumor, and, at the same time, by the fingers, to detach the adhesions, as these were brought within reach.

In this way I finally succeeded in enucleating the entire front portion of the tumor, and rolling it entirely out of the vagina. There still remained a large part of the tumor adherent posteriorly, and as the delivered mass interfered with the further progress of the operation, the latter was excised. The remainder of the tumor was equally adherent, and was managed in the same way, and the whole of it was finally removed.

"On examining the pelvis afterwards, the shreddy bed of the tumoral one remained. The small uterus could scarcely be recognized among the loose tissue, and still occupied an elevated position. Very little hemorrhage occurred, and although no anesthetic was used, the suffering was not intense. The tumor was very much mutilated by the efforts at removal, and proved to be much larger than had been suspected before the operation. It was ovarian and multilocular. September 30, 1858, Dr. Corson called to see me, and reported that Mrs. S. was entirely restored to health, and that menstruation was more regular than ever before. April 4, 1875, I incidentally met the patient in Philadelphia at her son's residence. She was the picture of health, and had never been sick since the operation."

As bearing on the subject, I cannot refrain from referring to a very curious and perhaps unique case of the successful removal of an ovarian cyst *per rectum*. It happened in the practice of Mr. A. W. Stocks, surgeon to the Salford Royal Hospital,\* who reports it as follows:

"E. J., aged 45, slightly built, married, had three children; she was last confined about twenty-two years ago. She menstruated regularly up to two years ago, irregularly till eight months ago, and not at all since. About eleven years back, a tumor about the size of a walnut appeared at the anus when getting out of bed, becoming larger on exertion. It was accompanied by faintness and uneasiness, especially when sitting down. She was always constipated, and could neither micturate nor defecate unless she replaced the tumor manually. She had lately experienced difficulty in coition. The lump had increased in size during the last ten months, and had come down always while at work, producing a good deal of pain in the hypogastrium, more particularly when she was in the upright position. She felt best when lying down. The prolapse was large, being about the size of a small cocoa-nut.

"March 15, 1872. When she was placed upon the operating-table, and under the influence of chloroform, for the purpose of having the simple prolapsus ani, as it was supposed to be, relieved by operation, defecation took place, the contents of the bowel being expelled in such a peculiar manner as to lead to the further and more precise examination of the

\* *British Medical Journal*, October 16, 1875, p. 487.

tumor. It was then discovered that the orifice of the bowel, instead of being at the most dependent part, was on the posterior aspect, and about half way between the edge of the anus and the lowest part of the prolapse. On introducing the finger into the rectum, a large mass was found to occupy the anterior fold of the prolapsed bowel, of globular shape, and capable of being encircled easily at its base. Per vaginam, the cervix uteri was found tilted forward and to the right side. The uterine sound could only be passed three-quarters of an inch, and a finger passed into the rectum could be easily approximated to the one in the vagina over the tumor, clearly showing an absence of continuity between the uterus above and the mass below. Moreover, on rubbing the tips of the fingers together, a hardened cord could be felt slipping between them. The conclusion, therefore, at once arrived at was that this cord was the Fallopian tube, and that the tumor was a small ovarian cyst, which had fallen through Douglas's pouch, become entangled with the prolapsed rectum, and protruded through the anus, dragging the uterus itself out of its normal position. It was evident that to give permanent relief it was necessary that this tumor should be removed. Accordingly, an incision was made in the anterior aspect of the prolapse parallel to the axis of the bowel, and, after breaking down some slight adhesions posteriorly, a small ovarian cyst was easily turned out. The pedicle was divided, after being secured by a strong hempen ligature, the end of which was left hanging out of the wound, and the wound was drawn together by an interrupted suture. There was considerable hemorrhage, and the flaccid bowel was left outside the anus.

"April 23. The protruded portion of the bowel was about the size of a walnut. Defecation was fairly under her control, and she could draw the prolapse back without manual assistance. The tumor was a unilocular ovarian cyst, and contained about five and one-half ounces of brown, slightly viscid fluid. The ovary and fimbriated Fallopian tube were attached to it."

Now let us analyze these cases: Dr. Wing's case and that of the girl before you show that the removal of the fluid of ovarian cysts, by the aspirator, is by no means wholly without danger. Notwithstanding the small size of the hollow needle employed, and the precautions taken to avoid the introduction of air, this simple operation was followed in both cases by putrefactive changes within the cyst, and in my own case, beside, by an outside lodgment of pus. Two other examples of this kind, both fatal, are furnished by Dr. P. F. Mundé in his unrivaled "Report on the Progress of Gynecology during the year 1875."\* In one, sep-

\* *American Journal of Obstetrics*, April, p. 1876, 146.

ticæmia was induced merely by the puncture of the cyst with the fine nozzle of a hypodermic syringe, and by the withdrawal of a few minims of fluid. In the other, one of a polycyst occurring in the practice of the reporter, peritonitis and septicæmia were set up after the use of a fine aspirator-needle. In a letter, dated April 26th, Dr. Mundé kindly gives me the history of a fifth case which lately occurred in the practice of one of his friends. A single aspiration was followed by inflammation of the cyst, and by the generation of gas in its cavity. The woman died with symptoms of rupture of the cyst. No autopsy was allowed. Such unfortunate accidents should warn us never to tap a polycyst, unless we are ready to perform ovariectomy within twenty-four hours.

The success attending both Dr. Wing's case and my own show also that ovariectomists are undoubtedly right in recommending the removal of an ovarian cyst, even after grave symptoms of peritonitis or of septicæmia have set in.

It also confirms the value of cleansing out the peritoneal cavity by irrigation. The profession at large have hitherto had too great a respect for this serous membrane,—a respect greatly enhanced in Philadelphia by the unfortunate experience of one of my colleagues. In a case of extra-uterine (ventral) fetation at term, he had safely delivered the woman by means of a vaginal incision. For several days his patient did so well as to give every promise of a speedy recovery. But the discharges becoming offensive, a weak solution of the potassic permanganate was thrown up the vagina. Intense pain was at once complained of, general peritonitis set in, and the woman, a few hours later, died in a state of collapse. The knowledge of this fact gave me some misgivings, for this was my first case of intra-peritoneal injections; nor were they allayed by the ominous shake of my colleague's head. But the result far exceeded my expectations. Every injection brought away putrid matter, and from the very first one my patient began to mend. Nor need the fear that air may be carried into the peritoneal cavity deter you from resorting to these injections. Pure air must surely be less hurtful than the fetid gas generated by

putrefactive changes. And so I found it in my case, for the syringe was an imperfect one, and bubbles of air passed freely into the abdominal cavity. Besides, the recent experiments of Frédéricq\* prove that unfiltered air can with impunity be projected for hours upon the peritoneum of such warm-blooded animals as guinea-pigs and rabbits.

Another lesson taught by my own case and that of Dr. Davis, is the great need for drainage in some cases of ovariectomy. In Dr. Davis's case there came away for four days after the operation, "an abundant, watery, dark-colored, and very offensive discharge, per vaginam, sufficient to saturate completely three or four times a day a folded sheet placed under her." And he pertinently asks: "Had this discharge had no outlet, would it not have produced either peritonitis or septicæmia, or both?" My case did not yield so great a discharge, but what came away was abundant enough to soil several napkins daily, and putrid enough to poison the air of a large ward. When, however, infection is guarded against by the spray, the exudations do not ordinarily decompose, and consequently do not often give rise to septic phenomena.

In the treatment of the stalk, after vaginal ovariectomy, the ordinary clamp is, of course, out of the question; there is no room for it. A special one for this purpose might be constructed, but its utility would be questionable. I should be loth to trust to anything short of the ligature. Enucleation, or even the use of the hot or the cold wire, might be followed by hemorrhage, and after the broad ligament springs back out of view, the bleeding point could not be secured unless the stalk were a long one. Had there not been in my case a lodgment of pus in Douglas's pouch, I should have used the gut ligature, and, after cutting it off close to the knot, have closed up the vaginal opening.

The scope of vaginal ovariectomy must necessarily be limited. Its performance is beset with too many difficulties to make it a rival to the ordinary operation. But there are certain condi-

\* *London Medical Record*, February 15, 1877, from *Annales et Bulletin de la Société de Médecine de Gand*, November 1876.

tions, in which I am sure that it can be resorted to with greater advantage—when, for instance, a small polycyst lodges in Douglas's pouch, or a large unadherent monocyst bulges down into the pelvic cavity. True, adhesions cannot always be foreseen; but if the removal of the cyst through the vaginal incision prove impracticable, and the operator be driven to laparotomy, then nothing more will have been done than the preliminary establishment of a probably needful drainage opening.

Thus far there have been reported no fatal cases from this mode of removing an ovarian cyst. And, indeed, it stands to reason that the risk should be lessened; for fewer important structures are aggrieved, the chance of infection is not so great, and good drainage must, *perforce*, be established by the very site of the incision. Such being the case, I shall, in future, feel more warranted in extirpating an ovarian cyst while it is small and not liable to contract adhesions, than to wait, as is usually done, for the woman to brood over it, and to suffer from it for months. I am now watching with great interest the left ovary of a young single lady. It is now as large as a hen's egg, and lies so loosely moored in Douglas's pouch, as to make its removal a matter of no difficulty. I am yet uncertain whether its size depends upon mere congestion or upon cystic degeneration. At my last examination I fancied that fluctuation was present. Should this turn out to be so, and should the gland grow, I would unhesitatingly urge its removal, *per vaginam*, while it is yet small and movable, and before it attains such a size, or it contracts such adhesions, as would compel the supra-pubic incision.

## LESSON XXVI.

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### *Nerve-Tire, and Womb-Ills;*

OR, THE RELATION OF NEURASTHENIA TO DISEASES OF THE WOMB.

**I**N the yet young and brilliant school of Gynecology there is, to my thinking, a tendency to make too much of the womb and its annexes as causes of so-called female disorders. Misled by traditional teaching, by such a name as woman, or womb-man, by such a misnomer as hysteria, or womb-disease, we yoke our practice to theory. Here let me say parenthetically, that while etymologically woman (womb-man) is so called because she bears a womb, physiologically she is a woman because she owns two ovaries,—for these glands are essentially the sexual organs, they, above all, giving her sex and personality. Instead, therefore, of womb-man, she ought to be called ovary-man; and I cannot but regret that we name her after an organ which can be seen and felt, and not after two organs which are not visible, and, in ordinary conditions of health, not even tangible.

Since there is in man an instinct of causality which craves to be satisfied, we are prone to base far-reaching conclusions on fragmentary evidence, or on indifferent data; to mistake coincidence for causation. So, whenever we find a train of symptoms associated with a congested or an otherwise disordered womb in a womb-man, we jump to the conclusion that the congestion is not a symptom, or a sequence, or a coincidence, but the factor, and at once proceed to treat it as such. Then again, forgetful that the imponderables are great forces in nature, we overlook the tyranny of woman's over-sensitive organization, and underrate the influence of nerve perturbations or of psychical disturbances.

Now in these days of mental overstrain, nerve-tire, or neurasthenia as it is technically called, is so common a disorder in our over-taught, over-sensitive, and over-sedentary women, that in its successful treatment every physician has an abiding interest. It manifests itself by hysteria, by spinal irritation, and by a crowd of reflex symptoms, among which those of a uterine complexion often overshadow and indeed outlast all the others.

The general pathology of such a neurosis is not perfectly clear, but it probably consists, as Beard first pointed out, essentially in mal-nutrition of nerve-centres, followed by disturbances in the circulation from weakened innervation. These secondary disturbances consist of local anæmias and of local hyperæmias. In other words, in that equilibrium of the two movements of wear and repair which means health, a disturbance occurs which means disease. There will be sudden ebbs and flows of impoverished blood in the various vital organs,—the same kind of surface-flushings and blanchings going on in the deeper structures. Thus we may see in the same person, and starting from one cause, alternations of anæmia and of hyperæmia of brain, of stomach, or of spine, with very generally stable hyperæmia of the reproductive organs. The cerebral exhaustion or irritation manifests itself by *clavus*, by wakefulness, by heaviness, by *asthenopia*, by inability to read or to write or to concentrate the thoughts on any given subject; the exhaustion of the stomach by *flatus*, by nausea, by *gastralgia*, by capricious appetite, and so on; the spinal exhaustion, by tender spots, *backache*, and weariness. The anæmia of the reproductive organs is exhibited by *amenorrhœa*, or by scant menstruation, by neuralgic and hysterical pains; the hyperæmia by congestion, by *dysmenorrhœa*, *menorrhagia*, and *leucorrhœa*, by uterine flexions and dislocations, and by a variety of subjective and objective phenomena with which every physician is familiar.

During menstrual life the sexual sphere preponderates over the others, so the stress of the anæmia or of the hyperæmia in these secondary circulatory disturbances very generally falls on the reproductive apparatus. Then again, malnutrition of nerve-centres produces a poverty in the quality of the blood, in which

obtains a peculiar susceptibility to emotional excitement. Hysteria is then not necessarily a diseased womb, nor yet is it an abstract entity, but the definite expression of some morbid action going on in the nerve-centres. But let us go a step further. Since functional relation exists between every act of thinking, feeling, or willing on the one side, and some molecular change in the body on the other, it follows that the mind-illness caused by the body-illness can in turn produce body-illnesses; the disturber becomes the disturbed. The effect of attention and expectancy on the bodily organs is great. Carpenter cites many relative facts, and Martin writes of a lady afflicted with gouty rheumatism, who, "if she converse about her ailments with any very sympathetic friend, will actually see the arm or the wrist swell and become painful."\* "Thought," proves Tuke, by many apt illustrations, "strongly directed to any part, tends to increase its vascularity and consequently its sensibility."† Hence come those life-like mimicries of grave structural disease, those mad muscles and local insanities. "The nerves," says Cabanis, "they are the man;" most emphatically, they are the woman.

Grasping this conception, we can be at no loss to understand that many disorders of the reproductive apparatus do not constitute the essential disease, but are merely the local expressions of the general neurosis. These neuroses present in general very definite characteristics; yet such uncompromising materialists are we in medicine—so apt are we to interpret the unknown in terms of the known—so forgetful of disturbed vital functions, of morbid nerve influence, and of that subtle interplay between mind and body—so oblivious to the fact that woman is a complex mass of action, emotional, intellectual, and physical—so impressed by what appeals to most of the five senses, by what we can see and feel—that we seize upon the visible and tangible manifestations as the disease, and treat them accordingly.

Take, for instance, this too common picture from life: A girl who entered puberty in blooming health, and without an ache,

\* *British Medical Journal*, Feb. 8, 1879, p. 180.

† *Influence of the Mind on the Body*.

is over-tasked and over-taxed at school, and her health begins to fail. She loses her appetite and grows pale and weak. She has cold feet, blue finger-nails, and complains of an infra-mammary pain. Head-ache, and back-ache, and spine-ache, and an oppressive sense of exhaustion, distress her. Her catamenia, hitherto without suffering, now begin to annoy her more and more, until they become extremely painful. Her linen is stained by an exhausting leucorrhœa, and bladder-troubles soon set in. She is wearied beyond measure by the slightest mental or physical exertion; a grasshopper is a burden to her, and she finally becomes hysterical. Now, very unfortunately, the idea attached to this group of symptoms is that the reproductive organs are at fault, and that the unit of resistance lies in the womb. A moral rape is therefore committed by a digital or a speculum examination, and two lesions will be found. Firstly, as a matter of course, a virginal antelexion, and, secondly, an endometritis. These are at once seized upon as the prime factors, and she is accordingly subjected to a painful, an unnerving, and a humiliating local treatment. Unimproved, she drags herself from one consulting-room to another, until finally, in despair, she settles down to a sofa in a darkened room and lapses into hopeless invalidism.

Now what is the interpretation of this train of symptoms? What mean this head-ache, this back-ache, these uterine and vesical symptoms? I cannot pretend to give the precise pathology, but I take it to be something like this: The yet developing nerve-centres of this brain-crammed girl were unable to cope with the strain thrown on them, and they broke down. But jaded nerves make poor blood and faulty circulation. From these come cerebral and spinal irritation, with head-ache and back-ache, and with general exhaustion. But since this girl is at an age in which the sexual sphere predominates, the brunt of the nervous and circulatory disturbances falls on the most exacting organs, the reproductive. There will be flashes of anæmia and of hyperæmia, the former in my observation being more constant in unmarried girls, the latter in married and in middle-aged single women. Active neurosis of the uterine group of

nerves takes place with either local or reflex manifestations, which mimic grave structural lesions of the womb. From increased reflex irritability comes spasm of the circular fibres of the cervical canal, causing dysmenorrhœa. All the sphincter muscles are liable to such spasmodic contractions, and thus arise such mimicries as hysterical dyspareunia, dysphagia, dysuria, dyschezia and dyspnœa. Often this spasm continues as a vicious habit, and, in the case of the circular fibres of the *os internum*, may keep up during the intermenstrual period, offering such a barrier to the passage of the sound as to lead to the diagnosis of organic stricture, and to a cutting or a dilating operation.

Other functional troubles of the reproductive apparatus come under this same heading of mal-nutrition, with exhaustion of nerve tissue. Thus are explainable those puzzling cases in which the womb is in its natural position and of its natural size, in which the sound readily enters, in which no lesion is appreciable, and yet dysmenorrhœa and back-ache are complained of. So can we explain many cases of turgid and neuralgic ovary. In these diseases no structural changes can be found, and yet they are so stubborn as to be shunned by the gynecologist. Sometimes there will exist a concurrence of essential and primary uterine disease, with secondary nervous exhaustion, the former begetting the latter. We see this often in women who have been hurt and worn-out by child-bearing, or in women exhausted by sexual excess. In these cases there will be an exaggeration of the uterine symptoms, a localized hysteria. There will also be very commonly an hysterical bladder, mimicking vesical catarrh and even stone. For hysteria is liable to billet itself upon maimed portions of the body, and especially on those organs—such as the womb and the bladder—which claim close kinship with the brain and the nervous system. Then, again, from the hyperæmia and dysmenorrhœa developed by the neuritis, we get secondary structural lesions, such as areolar hyperplasia, endometritis, and displacements, which may need a special treatment, besides the general one. But apart from those cases which clearly start from antecedent mischief to the reproductive

apparatus, no good comes from local treatment. Nor do they respond much better to ordinary therapeutic measures. They stand as a class by themselves, one which is in fact an opprobrium to the profession.

To remove this opprobrium is the chief object of my lesson to-day, for I am sure that it can be removed, and that by a plan of treatment first devised and first put in practice by my valued friend, Dr. S. Weir Mitchell, and so well described by him in his work entitled "Fat and Blood, and How to Make Them." He was good enough to call me in to some of his cases, cases which had hitherto baffled the best medical skill. Struck by his remarkable success, I followed his lead in those cases of back-ache and weariness and wakefulness, which tradition has labeled as disease of the womb, but which display no coarse uterine lesions—cases with leucorrhœa, or with amenorrhœa, or with menorrhagia, or with dysmenorrhœa, and yet so clad with the livery of hysteria as to perplex alike the psychologist and the gynecologist. Then, again, I was led to combine this treatment with a local one in those cases of undoubted uterine disease in which the exacting constitutional symptoms were out of all proportion to the local lesions. The results of the rest, of the massage, of the electricity, of the seclusion, and of the feeding, which constitute this treatment, so far surpassed my expectations that I can even now say with Horatio:

" Before my God, I might not them believe  
Without the sensible and true avouch  
Of mine own eyes."

Nothing is more easy than to make assertions; nothing so dreary as to narrate cases. Yet I fear that unless I prove the former by the latter, you will be led to say with Mr. Great-heart, "These are but generals; come to particulars, man." The particulars I shall limit to three, to but three out of many; one, because local treatment was not adopted; another, because it was first tried and found wanting; the third, because it was kept up throughout the constitutional treatment.

CASE 1.—On March 6, 1878, a tall and large-framed girl of

twenty was sent to me from a neighboring State. She was in wretched health and had been an invalid for some five years. Her catamenia began at the age of thirteen and were for two years free from pain. Then, for some unexplained cause, dysmenorrhœa began, which had gone on increasing until it was unbearable without anodynes. She suffered from aches all over her body, but more especially from back-ache, and from constant and very severe pain in both ovarian regions, the left being the worse. She had frequent fits of unconsciousness (hystero-epilepsy), out of which she awakened with frightful screams. Either *ardor urinæ* was present, or else a very obstinate retention, for which the only relief lay in the catheter. To complete the category of ailments, she had leucorrhœa, a uterine tenesmus which kept her from walking, obstinate costiveness, and a loss of all appetite. As her mother informed me, with probably some exaggeration, not a week had passed by for five years without several visits from her physician, and many hundred miles had he driven simply to draw off her water. About a year before I saw her she went to an adjacent city, and for several months was in the hands of a gentleman whose name is a warrant that she had the very best advice possible. He diagnosticated anteflexion with stenosis, at least I so infer, because after a long local treatment he advised a "cutting operation," and, upon her refusal to submit to it, introduced a tent which lighted up a very severe attack of peritonitis. This made her worse; she became bed-ridden, and then began to suffer from wakefulness, and also from severe uterine and ovarian colics, for which very large doses of chloral and of morphia were needed.

On March 10, after a very careful examination, I found the womb and ovaries very tender, the former turgid, anteflexed, and somewhat bound down by adhesions. The sound touched an exquisitely tender fundus without any difficulty whatever, and gave a measurement of 2.75 inches. A few drops of blood followed its withdrawal. Feeling satisfied both from her history and from this examination that the dysmenorrhœa was partly congestive, and that the severity of the symptoms was out of all

proportion to the local lesions, I advised Mitchell's treatment. I may as well confess that I made there and then a uterine application—one of iodine. It was the first and the last one, however, and I am now sure a wholly needless one, but the speculum was *in situ*, and—well, I could not resist the temptation. On the next day she was put to bed in a third-story room and placed under the charge of a nurse. Her aunt, at whose house she was staying, and a most judicious lady, did not see her at all for the first week, then but once daily for a few minutes, and later in the treatment twice daily. Throughout the treatment my patient saw no one else but her nurse, the woman who rubbed her, Dr. George S. Gerhard, who was kind enough to apply the electricity, and myself. She was not allowed to read or to write, and was at once put on a skimmed-milk diet, although she protested that milk and butter were poisons to her. Two days after the beginning of this treatment she had a bad attack of retention of urine. I made the nurse pass the catheter, and sternly told my patient that this must never happen again. It never did.

Apart from potassic bromide and morphia for the first few days, she got no other medicines than Trommer's extract of malt, dialysed iron, the zinc valerianate, and an occasional aperient pill. By March 18 she had reached four quarts of new milk daily, and could sleep without narcotics. On the 19th she had her first breakfast, consisting of an egg and buttered toast. March 22 her courses came on without any pain whatever; she was indeed unconscious of the flow until she found herself wet. On the 28th she drank throughout the day four quarts and a half of new milk, ate three boiled eggs with bread and butter for breakfast, and devoured actually one-half of a broiled chicken weighing four and a half pounds. To make a long story short, in this manner she went on with unmitigated appetite and uninterrupted improvement. Not only was her next monthly flow also without suffering, but by that time she was free from any pain or ache whatever. She now could sleep ten hours at a stretch, and nap it as well between her meals. On April 22 she began to sit up in bed, and her mother was shortly after

permitted to visit her for a few days. Her astonishment at her daughter's improvement was unbounded. Early in May she was walking about the house, and later, in the streets. On the 14th her father came and took her home—well. "They left this morning," wrote her aunt to me, "and a happier pair I have rarely seen."

During the forty-five days of her treatment she drank two hundred and eight quarts of milk, and averaged two and a half eggs a day. Her waist expanded from eighteen inches to twenty-seven, and she gained twenty-two pounds in weight. On the 15th of last August she wrote, saying, "I have been perfectly well ever since my return. I have walked with father two miles every evening, once over three miles; and, when I first saw you, could not walk across the room without screaming with the pain." I saw her last on April 27th of the following year, and found her so much improved in appearance that I failed to recognize her. Apart from an occasionally irritable bladder, she deemed herself perfectly well.

I have described this case somewhat at length, in order to illustrate the mode of treatment and to show what it can do. But I must refer those of you who wish a more detailed account to Dr. Mitchell's little book.

CASE 2, is the wife of a physician, who at my request kindly wrote out her history in the following letter:

"JULY 15, 1878.

"DEAR DOCTOR GOODELL—I take pleasure in reporting my wife's case before and since she came under your observation.

"She is now thirty-four years old, has been married eleven years, and has borne three children. In the first three years of married life there was no issue, until an operation of slitting the cervix, after which conception occurred. The first labors lasted from six to eight hours; the last only half an hour, although the child weighed ten pounds and a half; none were instrumental. From this last accouchement resulted retroflexion, partial prolapse, hypertrophied womb measuring three and a half inches in length, and all the accompanying symptoms of that condition. There were present pelvic pains, great weariness, inability to walk even a block, cervical and corporeal endometritis, and great pain in coition. She also, from the extreme tenderness of the womb, could not bear the softest pessary. Finally menorrhagia set in so profusely that she would become unconscious during her periods. She was under the treatment of two

eminent gynecologists\* during three years and a half, but without lasting benefit.

"In October last, I called you in, and your diagnosis was retroflexion of a hypertrophied womb, with eversion and hypertrophy of the lips from laceration of the cervix at her last confinement. For this you suggested an operation, which you performed November 1, of last year. Although wholly successful, this operation made no other change in her general condition than in reducing the amount of her periods and in permitting the use of a pessary. You now urged a system of rest, electricity, massage, and diet, which was begun early in December.

"Her condition at this time was inability to sleep, dreadful afternoon head-aches, flighty neuralgic pains of great severity, constant back-ache, frequent and prolonged nervous chills, distressing palpitations of the heart, obstinate constipation, and extreme emaciation. Her weight was eighty-seven pounds, although the average weight in health had been one hundred and six.

"During the treatment she gained twenty-four pounds—five pounds more than when in health. She has lost all traces of pelvic and neuralgic pain, sleeps from eight to ten hours undisturbed by night-horrors, walks long distances without fatigue, has normal menstruation, is free from constipation, and has a very good appetite. The condition of the womb in position, size, etc., is normal, though she still wears the modified Hodge pessary introduced by you after the operation.

"I very naturally watched this case with the greatest interest from its incipency, and believe that the first permanent step toward a cure was your operation on the cervix; for so long as there was hypertrophy, applications gave no relief and pessaries caused excessive pain. The next successful step was the seclusion, rest, manipulation, electricity, and dietetic treatment, together with the control you had over the psychical traits peculiar to hysteria.

Very truly yours,

X."

This was a very stubborn case, one which needed the firmest moral treatment. At one time excessive vomiting set in, which lasted several days, and came nigh ending my patient's life. Nothing stopped it but a cruel scolding, which was hard to give, as she was a gentle, lovable creature. Dr. Gerhard, who administered the electricity, will bear me out in the statement that it was an exceedingly tough case. I met her last week looking perfectly well, and steadily gaining in flesh.

CASE 3.—G. W., aged twenty-nine, has never been well since her first and only labor, eleven years ago. Eight years ago,

\*The late Drs. Peaslee and Atlee.

after nursing a sick child she became bedridden. She could not get up on her feet, because she not only suffered acute pain, but all her pelvic organs then "seemed about to fall out." Even the act of sitting up in bed brought on vomiting and fainting. Her menstruation was scant, but attended with extreme suffering; her micturition frequent and painful. She also had violent uterine colics, which lasted several weeks at a time, and for which enormous doses of opium and chloral were needed. During these eight years her physician, a very judicious practitioner, rarely missed seeing her once a day. But during these attacks he would often visit her three, four, five, and even seven times in the twenty-four hours. He early discovered a retroflexion of the womb, but that organ was so tender that neither he nor a distinguished gynecologist, who was also consulted, could find a pessary which she could bear. For many years she used once or twice daily a vaginal injection of a gallon of hot water, and had very appropriate topical treatment. Nothing, however, did her so much good as eighteen applications of leeches to the cervix uteri, during as many successive monthly periods. Under this treatment her appetite and sleep improved.

On September 25, 1877, she was placed on a litter and brought to me by her physician, after a long journey by rail. A more wretched creature I have rarely seen. She was pale, thin, and helpless, hysterical to the last degree, and greatly weakened by night-sweats. The retroflexed womb measured over three inches; it was heavy and dense, enlarged in every direction by areolar hyperplasia, and very tender to the touch. The cervix was studded with small cysts. The next day I put her on tonics and began a local treatment. After straightening the womb by rapid dilatation, and emptying the cysts, I succeeded in fitting her with a Hodge pessary. Finding that she mended very slowly, on November 5 I began the use of massage, without, however, discontinuing local application. A few weeks later, Dr. Wharton Sinkler applied the electricity. She began at once to get better, and that rapidly. By January 11, 1878, she had increased in weight from eighty-three pounds to one

hundred and nineteen. Eleven days later she walked nine of our city squares—that is to say, very nearly a mile—to my office, to report an additional gain of four pounds, making forty in all. Shortly afterwards she went home, by no means cured of her uterine troubles, but wonderfully bettered in her general health. On May 27 she wrote me that home cares and the hardships of poverty had caused her to relapse somewhat, and that during the catamenial week she was obliged to keep on her back. But, she added, "After eight successive years in bed, I feel it a great blessing to be able to tend my own wants." On November 29, she came without assistance to my office. I found her somewhat less fleshy, but able to be up and do her housework. During the catamenia she had, on account of pain, to lie down for four and twenty hours; but at other times she was free from aches and considered herself very well.

Now, while I grant that this was not a cure, yet here was a woman with an incurable disease of the womb, bed-ridden for many years, and with so many exacting symptoms as to become the *bête-noire* of her physician, sent home quite able to take care of herself, and so much better as to astonish her physician and her friends. This was a success which under the circumstances no other treatment could have gained.

While I deem the rapid increase in flesh in these cases a very trustworthy token of returning health, yet the success of the treatment does not always depend upon it. Miss K. R., who had excruciating suffering at her monthly periods, defective locomotion, and other marked uterine symptoms, besides great nervous exhaustion, became well, although she gained but five pounds. Mrs. M., a sterile lady with a heavy and tender retro-flexed womb, was entirely relieved of ovaralgia, menorrhagia, and other grievous sexual symptoms which for years had embittered her existence; yet her gain was but seven pounds. On account of the slow and inappreciable increase in the weight of these patients, both Dr. T. V. Crandall, who gave the electricity, and I, at first feared a failure, but they turned out to be signal cures.

Other cases, either with or without uterine treatment, could be given, but these are enough to serve my purpose.

Now, how is it that in these cases this treatment was followed by such success? The symptoms were such as nine physicians out of a hundred would ascribe to uterine disease, and to uterine disease alone, and yet my patients got well with but little or no local treatment. What then is the next question between the means used and the apparent uterine disorder? The explanation is, to my thinking, as follows: The essence of the disease lies, not in the sexual organs but in the nerve-system. These lack-lustre-eyed, thin-blooded, tender-spined, and nervous creatures give a history of exhaustion, of wakefulness, of great nervousness, and of constant back-ache and ovarian pain. There are then four objects to be secured—nutrition, sleep, freedom of body and of mind, and freedom from pain.

The question of nutrition is an important one, because these women are wholly without appetite and reject wholesome food. Repair not equaling wear, the starving nerves begin to rebel. By giving large doses of iron, and certain fixed rations of food at fixed hours, as laid down by Dr. Mitchell, sleep is induced, and nervous pains are allayed, in cases which had hitherto resisted all treatment. This goes without saying.

Seclusion is important, first to free the mind from all distractions, next to remove the invalid from the home environment where her whims are pampered into an unhealthy importance, and all slightest caprices anticipated. Again, it puts the patient under the control of her physician. This is of no little importance, for there are no hard and fast rules of diet, massage, or rest for restoring these hysterical women to health. Each case stands by itself; each has an individuality to which the treatment must be adapted, and the personal magnetism of the physician can alone supply in each the missing link between will and action. Acting upon these views, I have generally treated my patients away from their homes. Sometimes I have compromised the matter by putting them in a story room at home, but as it were under lock and key.

The therapeutic effects of massage and of electricity are analogous, but they need a somewhat extended explanation. The four principal manipulations of massage are:—

Faradization, or by central or spinal galvanization. In a large proportion of these cases there was more or less of anæsthesia in one leg—usually the left—accompanied by burning and cutting pains radiating from the corresponding ovary. Faradic excitability was at first always enfeebled on the affected side, but after several sittings the muscles began to respond to the current, and motility was restored. In not a single instance did these nerve lesions last long. The ovaralgia was, however, not so readily overcome, but it was very interesting to watch how surely it was rubbed out and Faradized out—in fact, extinguished.

This treatment I once saw act like a charm in one of those fat and flabby women, with feeble hearts, with menorrhagia, and with very exacting uterine and hysterical symptoms. This fat accumulates from insufficient oxidation, brought about either from impeded circulation or from impoverished blood, in which those oxygen carriers, the red blood corpuscles, are lessened in number. This will sometimes happen after a *post partum* flooding, or, as I have lately seen it, from the prolonged hemorrhages caused by a uterine polypus. The menorrhagia was probably the cause of it in this case. One finds it also in the muscles of paralyzed limbs. But to return to my patient; she was brought to me from a neighboring state when she had been confined to her room for over four years, and had not been able to move from her chair to her bed without the aid of crutches and that of her nurse. I first used the curette, then put her on a skimmed-milk diet as recommended by Dr. Mitchell, reducing the quantity daily until it seemed barely enough to keep her alive. Waste material was meantime eliminated by free purgation. Then by good wholesome food, by equalizing and stimulating the circulation through the use of massage and electricity, by the use of digitalis as a heart tonic, and by very large doses of iron—thirty-seven grains of the dried sulphate *per diem* in the form of Blaud's pill—to increase the number of red blood corpuscles and thereby the combustion of the tissues, she got out of bed in eleven weeks' time with a weight reduced from two hundred and twenty-five to one hundred and eighty-six pounds, threw away

her crutches, walked without assistance, and has since been doing well.

This treatment also answers admirably for the spurious womb-ails and nerve perturbations of the climacteric. Nothing so surely controls the heats and chills, the shiverings and sweatings, the nerve-tinglings and emotional explosions, so common at the change of life.


Then again there is another class of cases to which this treatment is peculiarly adapted. I refer to that large group of uterine disorders which come from sexual excess. Excessive functional activity of the reproductive organs causes proportional exhaustion, and passive congestions of the nerve centres. The turgidity is perhaps most marked at the lumbar portion of the spinal cord, whence it begets morbid irritability of the sexual organs. Repeated coition then means repeated congestions and exhaustions. And when one of a married couple is too weak, or one is relatively too vigorous for the other, semi-passive congestion of the nerve-centres obtains, and the exhaustion becomes permanent. Sometimes it is the husband that suffers, and one would *à priori* suppose that, since he alone of the two parts with a highly vitalized fluid, this would generally be the case. But it is not so; unless he happen to have the germs of some hereditary disease, such as phthisis, lurking in his system, or he be past the prime of life when he marries a young or a second wife. Strange as it may seem, it is the woman who receives, and not the man who gives, that breaks down in health; but fortunately the nerve-lesions, being functional and not structural, are curable. These cases have back-ache, leucorrhœa, menorrhagia, loss of sexual desire, weakness of the lower limbs almost amounting to a palsy, uterine congestion, and the usual local symptoms and lesions resulting therefrom; but they will not be benefited in the least by a topical treatment. They need to be put to bed and to be built up by massage, electricity, and food. They need especially to be separated from their husbands, and thus have both functional and physiological rest. In one of my cases, treated, unluckily, at her home, a single stolen coitus undid the work, and put my patient back.

Of course, it would be unreasonable to suppose that the foregoing treatment could exclude all local treatment. Putting a woman to bed cannot cure a lacerated cervix, or a cervical stenosis, or an acutely bent womb. But what I claim for it is that it has in my hands cured granular erosion, menorrhagia, intermenstrual ovaralgia, and most of the diseases arising from passive congestions. I will go farther, and say that I believe it will often obviate the need for spaying a woman for pernicious menstruation. So frequently, indeed, have I seen it cure a bad dysmenorrhœa, that I look upon it as a specific remedy for that ailment, when not dependent upon a sheerly mechanical cause. For instance, Miss H., who had for years the most agonizingly painful dysmenorrhœa conceivable, after a treatment of eight weeks wrote me the following: "Four days after my return home my courses came on, and—can you believe it?—I never knew it until I felt the dampness on my clothing. I never expected to see that day. I felt some discomfort the day before, but I did not have *one* pain." Eight months have now gone by, but the same remarkable freedom from pain still exists.

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 Cholera infantum, as treated by N. S. Davis, J. Lewis Smith, Clymer, Hay, Roase and Trousean, Barker, Heigel, Clymer, Geiger, Niemeyer, Smith, Meigs, Da Costa, etc., on Croup, Diphtheria, as treated by potash and iron; carbolic and sulphurous acids; the bisulphites; chloral and salicylic acid; calomel; rapid cinchonism; oxalic acid; gualacum; stimulants; inhalations; gargles for Porcher's preventive mixture etc., etc.  
 The last chapter is devoted to the medical and hygienic treatment of alcoholism and the opium habit, giving numerous valuable suggestions on these subjects, almost wholly neglected in works on practice.

## In the SURGICAL THERAPEUTICS

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